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Musselshell - East and West and Melstone - East and West

STPP 14-5(18)189 and 14-5(12)196
Control Numbers 1302 and 2152

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Finding of No Significant Impact & Environmental Assessment

May 2002

Prepared for:
Montana Department of Transportation

Montana Dept. of Transportation

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FEDERAL HIGHWAY ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

STPP 14-5(18)189 and 14-5(12)196
Musselshell – East and West
Melstone – East and West
(CN 1302 and 2152)

IN

MUSSELSHELL COUNTY, MONTANA

THE FEDERAL HIGHWAY ADMINISTRATION HAS DETERMINED THAT MDT'S "*PREFERRED*" ALTERNATIVE FOR THIS PROPOSED PROJECT WILL HAVE NO SIGNIFICANT IMPACT ON THE HUMAN ENVIRONMENT. THIS FINDING OF NO SIGNIFICANT IMPACT IS BASED ON THE ATTACHED ENVIRONMENTAL ASSESSMENT WHICH HAS BEEN INDEPENDENTLY EVALUATED BY THE FEDERAL HIGHWAY ADMINISTRATION AND DETERMINED TO ADEQUATELY AND ACCURATELY DISCUSS THE NEED, ENVIRONMENTAL ISSUES, AND IMPACTS OF THE PROPOSED PROJECT AND APPROPRIATE MITIGATION MEASURES. IT PROVIDES SUFFICIENT EVIDENCE AND ANALYSIS FOR DETERMINING THAT AN ENVIRONMENTAL IMPACT STATEMENT IS NOT REQUIRED. THE FEDERAL HIGHWAY ADMINISTRATION TAKES FULL RESPONSIBILITY FOR THE ACCURACY, SCOPE, AND CONTENT OF THE ATTACHED ENVIRONMENTAL ASSESSMENT.

_____, Date 5-29-2002

Dale Paulson
Federal Highway Administration

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ENVIRONMENTAL ASSESSMENT
and
"Nationwide" PROGRAMMATIC *Section 4(f)* EVALUATION
for
STPP 14-5(18)189
Musselshell – East & West
and
STPP 14-5(12)196
Melstone – East & West
in
Musselshell County, Montana

This document is prepared in conformance with the *Montana Environmental Policy Act (MEPA,* **75-1-201 M.C.A.***)* requirements, and contains the information required for an Environmental Assessment under the provisions of ARM 18.2.237(2) and 18.2.239. It is also prepared in conformance with *National Environmental Policy Act (NEPA,* **42 U.S.C. 4231,** et seq.*)* requirements for an Environmental Assessment under 23 CFR 771.119, and *Section 4(f)* of the 1966 *U.S. DEPARTMENT OF TRANSPORTATION ACT* (**49 U.S.C. 303**) under 23 CFR 771.135.

Submitted pursuant to **42 U.S.C. 4332(2)(c), 49 U.S.C. 303, Sections 75-1-201 & 2-3-104, M.C.A.,** and **Executive Orders 11990, 11988, and 12898.**

by the

U.S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
and the
MONTANA DEPARTMENT OF TRANSPORTATION

Submitted by: Stan Sternberg Date: April 12, 2002
MONTANA DEPARTMENT OF TRANSPORTATION
Environmental Services

Reviewed & Approved for Distribution: Gene R. Kaufman Date: 4/15/02
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METRIC CONVERSION

In accordance with recent Executive Orders and the Secretary of Commerce direction, Federal Highway Administration and supporting agency plans are to be presented in metric units. This document, where appropriate, will reflect both English and metric units side by side to assist the reader. The metric unit is shown first followed by the English unit in parentheses. For example: 13.7 kilometers (km) (8.5 miles [mi]). The following is a brief summary of the conversion factors and units used in this document:

Metric Units	English Units	Conversion Factor (Metric to English)
millimeter (mm)	inch (in)	0.3937
meter (m)	foot (ft)	3.2808
kilometer (km)	mile (mi)	0.6214
hectare (ha)	acre (ac)	2.471

ABBREVIATIONS AND ACRONYMS

± ..... approximately
ac ..... acre(s)
BMP ..... Best Management Practices
BRR ..... Biological Resource Report
CADD ..... Computer Aided Design and Drafting
CFR ..... Code of the Federal Register
cm ..... centimeter
CoE ..... U.S. Army Corps of Engineers
EA ..... Environmental Assessment
EPA ..... U.S. Environmental Protection Agency
ft ..... foot (feet)
ha ..... hectare(s)
in ..... inch(es)
km ..... kilometers(s)
km/hr ..... kilometers per hour
m ..... meter(s)
mi ..... mile(s)
MBEWG ..... Montana Bald Eagle Working Group
MDEQ ..... Montana Department of Environmental Quality
DNRC ..... Montana Department of Natural Resources and Conservation
MDT ..... Montana Department of Transportation
MFWP ..... Montana Fish, Wildlife, and Parks
MIWG ..... Montana Inter-Agency Wetlands Group
MNHP ..... Montana Natural Heritage Program
mph ..... miles per hour
NRCS ..... Natural Resources Conservation Service
pers. comm. ..... Personal Communication
RGL ..... Regulatory Guidance Letter
R(M)P ..... Reference (or Mile) Post
ROW ..... right of way
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey

I. PURPOSE OF AND NEED FOR ACTION

This Environmental Assessment (EA) is for two proposed Montana Department of Transportation (MDT) projects, Musselshell-East & West and Melstone-East & West, located in central Montana in Musselshell County. The two proposed projects would involve the reconstruction and the realignment of US Highway 12 (Primary Route 14), a Rural Minor Arterial, which presently has several horizontal and vertical curves that do not meet current design criteria.

The proposed reconstruction activities include horizontal and vertical roadway realignment, lengthening curves, minor widening of the driving surface and side slopes, and improving grades. A proposed plant mix surfacing over a crushed gravel base would cover two 3.6 m (12± ft) wide driving lanes with 0.6± m (2± ft) wide shoulders along their outsides, and would include seal and cover with pavement markings. Fifteen (15) timber bridges and all existing culverts would be replaced. New guardrail, fencing, and signs would be installed where appropriate along both proposed projects.

A. Location of Proposed Projects

As illustrated in Figure 1, the proposed projects are located on US 12 in central Montana within the following legal descriptions:

Musselshell – East & West

Township(s)	Range(s)	Section(s)
9-N	28-E	25
9-N	29-E	10,11,15,16,19 - 21,29, & 30

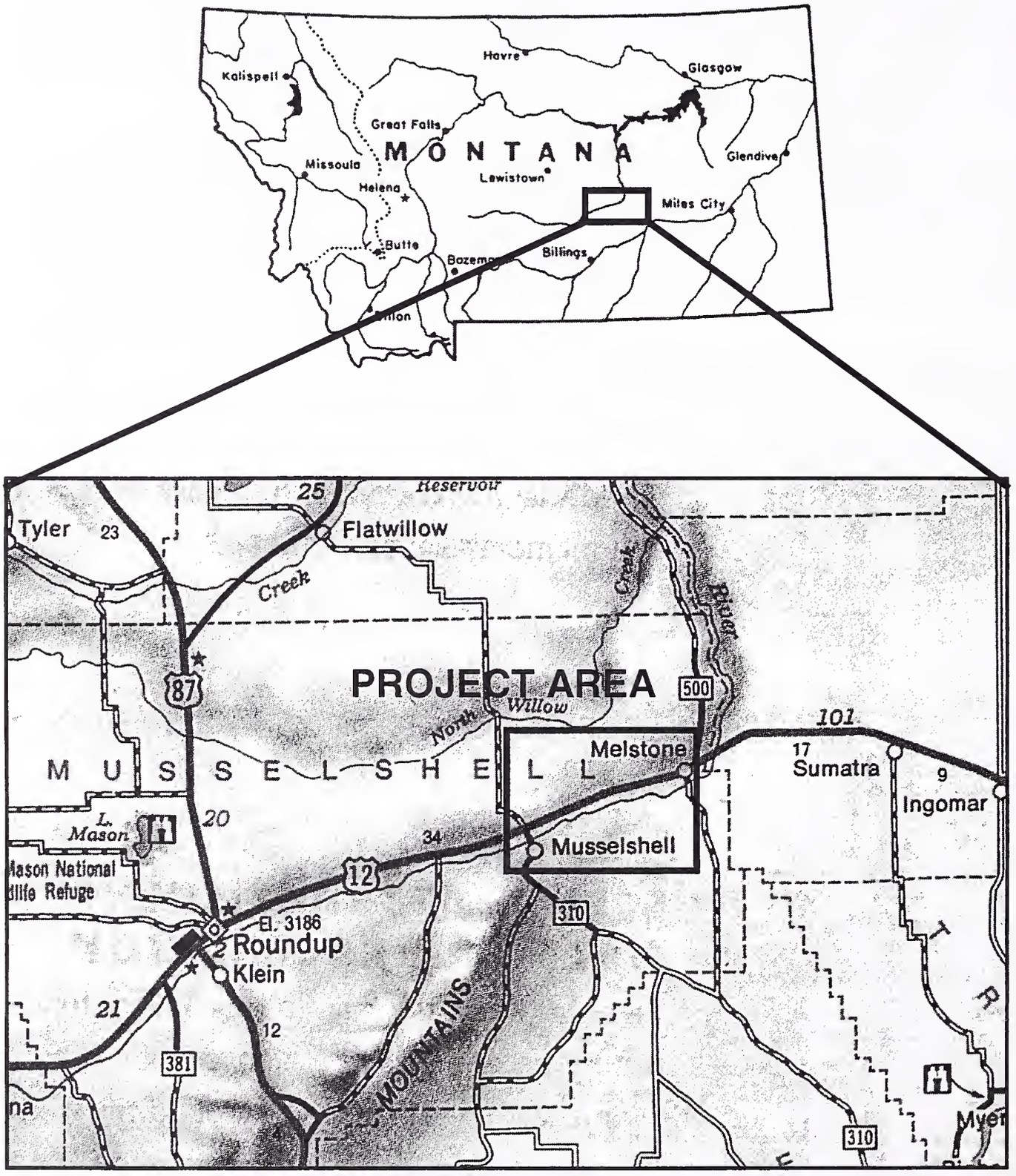
Melstone – East & West

Township(s)	Range(s)	Section(s)
9-N	29-E	11 & 12
9-N	30-E	2 – 7
10-N	30-E	35 & 36
10-N	31-E	20 & 21, 29 - 31

The proposed Musselshell-East & West project's west-southwest beginning is at approximately US 12 Reference (Mile) Post (R[M]P) 189.35±, which is about 4.4 km (2.75 mi) west-southwest from US 12's junction with Montana Secondary Highway 310 (the road to Musselshell). Its proposed route is either on or within 125±m (410±ft) of US 12's current alignment for about 10.4 km (6.45± mi) east-northeast to RP 195.9± where it adjoins the proposed Melstone-East & West project (see Figure 2).

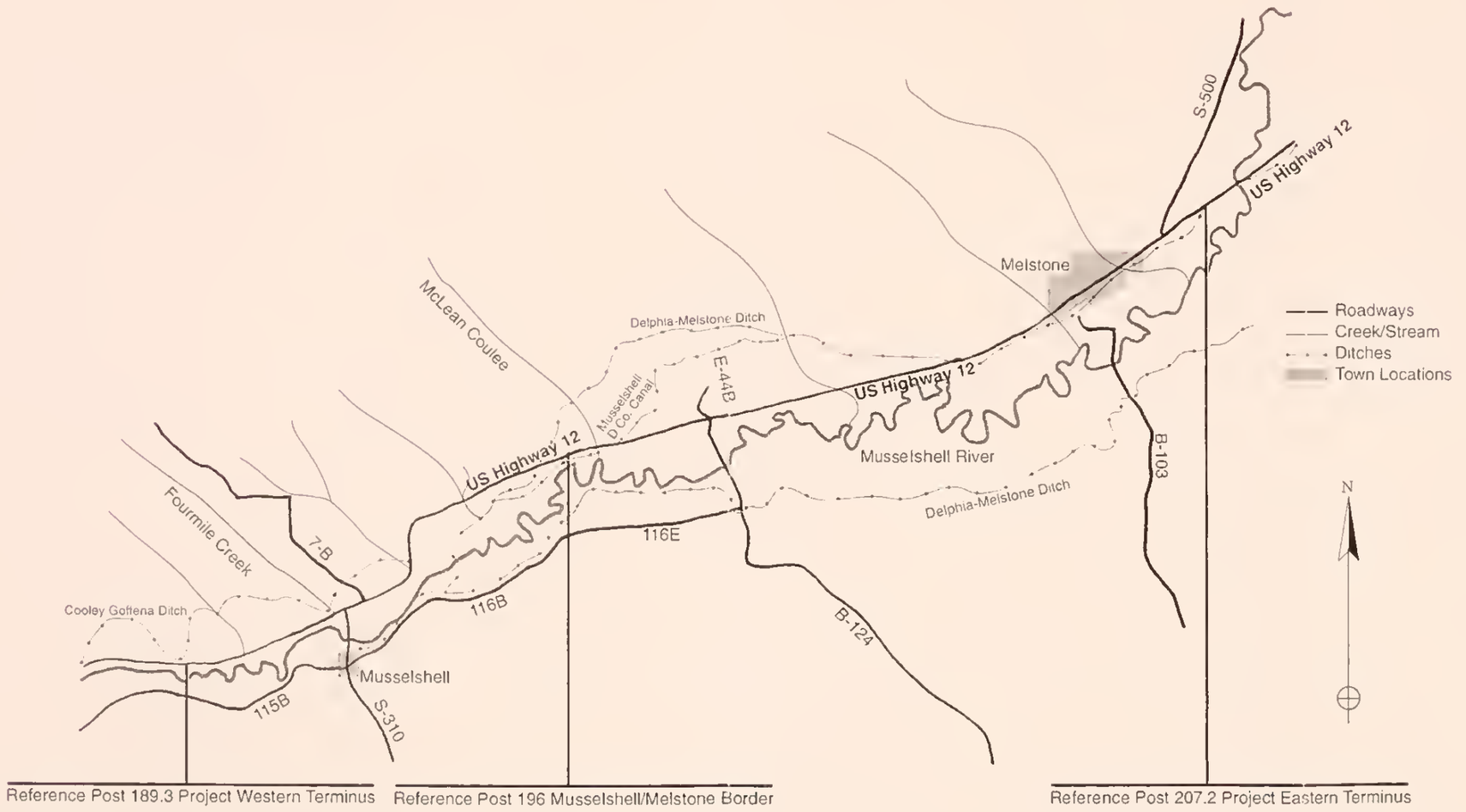
Photo 1: Timber bridge located on the Melstone project.

Figure 1
Regional Location



Montana Dept. of Transportation

Figure 2
Project Area Corridors



TOTAL LENGTH OF CORRIDOR 27.7 kilometers (17.2 miles)

The proposed Melstone-East & West project then travels approximately 17.3 km (10.74± mi) east-northeast on or along US 12's current route to the eastern terminus at RP 206.7 ±. The eastern terminus is 1.35±km (0.85±mi) east-northeast of US 12's junction with Montana Secondary Highway 500 between the Town of Melstone and US 12's Musselshell River bridge. Approximately 2.05 km (1.3±mi) of this proposed project is (between RP 203.7± and 205.2±) within the Town of Melstone's corporate limits.

The combined length of both proposed projects is approximately 27.7 km (17.2±mi), and is entirely within east-central Musselshell County. The corridor is primarily rural in character with the exception of the towns of Musselshell and Melstone. The unincorporated town of Musselshell is located on Secondary 310, approximately 1.1 km (0.7±mi) south of US 12, and adjacent to the Musselshell River south bank. The rural areas contain predominantly livestock production and either dryland or irrigated crop farming, with some evidence of oil exploration near the northeastern end. An abandoned railroad grade runs generally parallel with, and to the south of US 12 throughout the corridor's length.

The Musselshell River flows generally east-northeast within the study area, and its meander channel's are within 0.05±km to 2±km (0.03±mi to 1.25±mi) of US 12 to the south throughout the corridor. Much of the soil types along the corridor are combinations of silts and clays, with limited amounts of loams along the river's banks and its old channels. The proposed Musselshell-East & West project's portion of US 12 crosses Fourmile Creek at RP 191.9± and five intermittent unnamed tributaries. The proposed Melstone-East & West project crosses McLean Coulee at RP 196.5±, and eleven intermittent unnamed drainages.

Terrain in the proposed Musselshell-East & West project is generally flat to mildly rolling between its westerly beginning and a horizontal curve to the north nearly 1.5 km (0.9±mi) east-northeast of US 12's junction with S-310. For the next 2.25±km (1.4±mi), the present route crosses over a sandstone bluff in excess of 55±m (180±ft) above the valley, which is incised by a 23±m (75± ft) deep coulee in its northeastern portion, followed by another coulee that is roughly half that depth along its lower east-northeastern end. The pending Melstone-East & West project is in generally level topography throughout its proposed length. An exception being a slight 4±m (13±ft) rise crossing over the toe of a ridge approximately 2.1km (1.3±mi) southwest of Melstone.

Design Criteria

MDT's Route Segment Plan identifies US 12 as a Rural Primary Highway. As such, any improvements to the roadway will be guided by the design criteria outlined in Table 1.

All of the proposed alignments, vertical and horizontal, meet or exceed the design criteria in Table 1. The largest vertical crest in both the Musselshell and Melstone projects is located at RP 193.6± of the Musselshell project and has an 8.96 percent difference in slope and a length of 1100 m (3,280 ft). This results in a crest of 123 which exceeds the desirable crest value of 110. The tightest sag, with a slope difference of one percent and a length of 60 m (197±ft), is located at RP 203.2± of the Melstone project and has a sag value of 60, which exceeds the desirable sag value of 52.

Table 1
MDT Design Criteria for Rural Primary Highways

Design Elements	Design Controls for Level Terrain
Design speed	100 km/h (60 mph)
Level of Service	LOS B
Roadway Elements	
Paved Road Width	8.4 m (28 ft) *(determined by MDT Route Segment Plan)*
Shoulder Width	Two 0.6 m (2 ft) Shoulders
Travel Lane Width	Two 3.6 m (12 ft) Lanes
Alignment Elements	
Horizontal Curvature	395 m (1295 ft) (minimum radii)
Vertical Curvature:	
Crest	110 (desirable)
	64 (minimum)
Sag	52 (desirable)
	38 (minimum)
Stopping Sight Distance	210 m (690 ft) (desirable)
	160 m (525 ft) (minimum)
Passing Sight Distance	675 m (2215 ft)
Maximum Grade	3%*
Minimum Grade	0.50% (desirable)
	0.20% (minimum)

Source: Montana Road Design Manual, MDT, November 2000, Figure 12-3.

* From RP 192.8± to 194.1± (bluff area) the allowable grade would be raised from the design criteria of 3 % up to a maximum of 6 % due to extenuating circumstances caused by the roadway's proximity to bluffs. The vertical curve at RP 193.6± would exceed the 3 % grade with an up slope of 4.82 % and a down slope of – 4.14 %. However, even this curve would be within the recommended 6 % slope limit for that area.

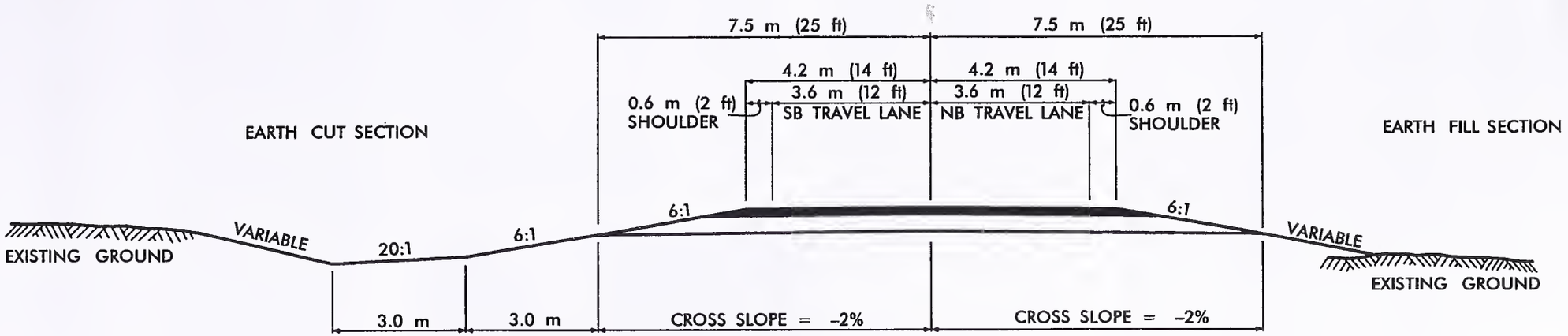
Stopping sight distance is a function of the grades approaching and exiting a vertical curve, and the associated vertical curve length. This relationship produces a "K" value, which can be used to evaluate the vertical curve's allowable stopping sight distance. "K" values cannot be computed for locations where there is no vertical curve, therefore those locations do not meet current MDT design criteria. However, many of the locations, with little or no vertical curve length, may still have sufficient stopping sight distance because of the small grade chance at the VPI. The minimum stopping sight distance is 160 m (524.9 ft) for level terrain and 140 m (459.3 ft) for rolling terrain. All the vertical curve designs and stopping sight distances for the two projects meet or exceed MDT Design Criteria.

Horizontally, the radius of the curve governs design. The smallest radii of both Musselshell - East & West project and the Melstone - East & West project would be 600 m (1,970 ft) and 1,750 m (5,740 ft) respectively. These radii would both well exceed the design limit of 395 m (1,295 ft) for this route.

Cuts estimated to be required for construction would range from 3.6 m (12 ft) to 13.5 m (44 ft) and the fill would range from 5.0 m (16 ft) to 11 m (36 ft).

A typical section for the proposed projects is shown in Figure 3.

Figure 3
Typical Section



NOTE: FINISH TOP WIDTH HAS BEEN INCREASED 0.8 m (3 ft) TO ACCOMMODATE FUTURE SURFACING

B. Need for Proposed Projects

The existing roadway was originally constructed under the following three projects: all of the proposed Musselshell-East & West, and the western portion of the proposed Melstone-East & West project (to RP 204.1±) were part of the FAP 328 F & F(2) projects completed in 1939; while the eastern portion of Melstone-East & West was built in 1946 under the FAP 328-I(1) project. The Musselshell-East & West, and the western portion of Melstone-East & West was part of the Roundup-Forsyth project, and has not been improved (other than routine maintenance) since its completion. The remaining section of Melstone-East & West was a later version of the Roundup-Forsyth project, and received a "thin-lift" overlay with seal and cover treatment under a maintenance program in 1963. A narrow surface width, poor pavement and deteriorated subgrade conditions, along with several poor horizontal and vertical curves exist within these projects in the corridor. None of which provide a desirable level of safety and efficiency for this type of roadway. In its current condition, maintaining the roadway is difficult due to the age and strength of the top width.

1. Safety Concerns

MDT accident data from July 1, 1988 through June 30, 1998 indicates that although the overall accident rate along the Musselshell-East & West and the Melstone-East & West project corridors do not exceed the statewide average, the severity index for accidents along the Musselshell-East & West project corridor is substantially higher than the statewide average. The severity index designates a weight on each accident type and takes the average of the weighted sum (accidents resulting in property damage, injuries or fatalities are weighted higher). The severity accident rate is the accident rate multiplied by the severity index.

Table 2 below summarizes the accident data for both projects. It should also be noted that the accident rates for trucks along the project corridors have been slightly higher than the statewide average.

Table 2
MDT Accident Data for US 12

Criteria	Statewide Average	Musselshell - East & West	Melstone - East & West
All Vehicle Accident Rate	1.33	1.07	0.93
Severity Index	2.55	3.27	3.64
Severity Rate	3.38	3.50	3.39

Source: MDT Accident Data, May 1999.

2. Travel Demand and Roadway Use

The portion of US 12 in the project corridors is predominantly used by commercial and recreational traffic, school buses, mail delivery, emergency services, and local residents traveling between county or regional (Lewistown or Billings) destinations. The Town of Roundup, the largest city in the county and the county seat, is located approximately 19 km (11.8± mi) to the southwest of the western terminus of the Musselshell project. Many residents in the area travel between Melstone and Musselshell, to Roundup. Commercial trucks often use this section of P-14 for similar travel patterns, the most common being either the distribution of goods to the small communities of Musselshell and Melstone or for transport of agricultural products.

Roadway use is described by several measures. One measure is the Average Daily Traffic (ADT), or the number of vehicles anticipated to travel on the roadway section during one day. In 1999, MDT's

measured ADT for the Musselshell-East & West project was 670 vehicles per day. Traffic volumes are, however, anticipated to increase in the future due to increased numbers of residents and visitors in the area. As shown in Table 3, the ADT is projected to increase to 820 vehicles by the year 2021 for the Musselshell-East & West portion of the corridor. For Melstone-East & West, the ADT data indicates that traffic has increased from 230 to 240 between 1999 and 2001. The ADT for the Melstone segment is anticipated to increase to 290 by the year 2021.

Table 3
Average Daily Traffic (ADT) for US 12 in Proposed Project Corridor

Year	Musselshell-East & West	Melstone-East & West
1999	670	230
2001	680	240
2021	820	290

Level of Service (LOS) is often used as a measure of roadway efficiency, and qualifies the level of congestion along a segment of a highway. The roadway currently operates at an acceptable LOS and is anticipated to continue to operate at an acceptable LOS over the 20-year design life.

3. Roadway Deficiencies

The terrain along the project corridors is mostly level along the river valley with some rolling areas. The steepest grade is approximately seven percent between RP 193.1± and 193.6± and RP 193.7± and 194.1±. Grades greater than four percent are between RP 194.2± and 194.55±, and RP 195.1± to 195.2± on the bluff's northeastern slope. Along the Musselshell - East & West project, there are nine crest curves and five sag curves with stopping sight distance less than the 100 km/h (65 mph) design speed required along US 12 within the study area. However, no grades exceed two percent on the proposed Melstone-East & West project portion of US 12's existing roadway.

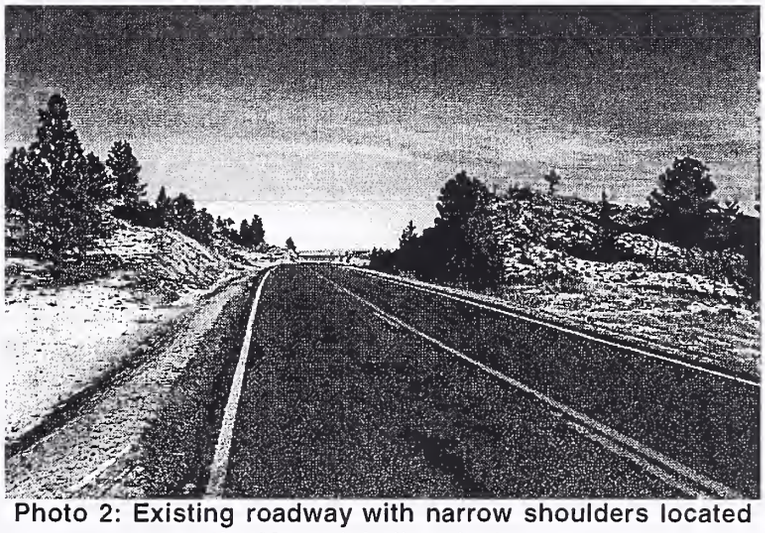


Photo 2: Existing roadway with narrow shoulders located on the Musselshell project.

The current paved surfacing width varies between approximately 7.3 m and 7.9 m (24±ft to 26±ft) throughout these proposed projects in the corridor. Very little if any shoulder width is provided and the rural sections have steep sideslopes. The MDT standard shoulder width for this type of roadway facility is 0.6 m (2.0± ft), which would amount to an overall roadway width of 8.2 m (28± ft). Based on MDT's policy to provide a sufficient finished top width to accommodate one overlay project within the 20-year design life of the project, the finished top width for this project will add approximately 0.8 m (3.0 ft) to the width ultimately recommended through this study.

The existing surface throughout these proposed projects in the corridor is in poor condition, and exhibits widespread failure(s).

Extensive longitudinal and transverse cracking, rutting, and "raveling" are present on both proposed project's portions of US 12. Some of this is due to subgrade failures, while the overall age of the

surfacing is the main cause. The road-mix on both the proposed Musselshell-East & West portion, and most of the Melstone-East & West portion are over six decades old. The maintenance treatment on the eastern quarter of Melstone-East & West was done nearly 40 years ago, and is in better condition than the surfacing done on the majority of these proposed projects in the corridor almost 25 years earlier. Only the relatively low traffic volumes on US 12 within this proposed projects in the corridor have prevented further surface deterioration.

The fifteen timber bridges on both proposed projects' portion of US 12 are listed in Table 4.

Table 4
Existing Timber Bridges
(Musselshell - East & West)

RP Location	# of Spans	Width		Total Length		Featured Crossed
		m	(ft)	m	(ft)	
189.7±	1	9.3±	(30.5)	3.56±	(12.0)	stockpass & drainage
190.4±	1	8.5±	(28.0)	7.6±	(25.0)	Cooley-Goffena Ditch
191.4±	3	8.5±	(28.0)	17.4±	(57.0)	Old meander channel
191.9±	4	8.5±	(28.0)	23.2±	(76.0)	Fourmile Creek
193.1±	3	8.5±	(28.0)	17.4±	(57.0)	stockpass & drainage
194.5±	5	9.0±	(29.5)	29.0±	(95.0)	Drainage
195.45±	1	8.6±	(28.3)	6.4±	(21.0)	stockpass & drainage
195.45±	1	8.5±	(28.0)	6.4±	(21.0)	stockpass & drainage

(Melstone - East & West)

RP Location	# of Spans	Width		Total Length		Feature Crossed
		m	(ft)	m	(ft)	
196.5±	3	9.45±	(31.0±)	17.4±	(57.0)	McLean Coulee & stockpass
196.6±	1	9.45±	(31.0±)	3.35±	(11.0)	stockpass & drainage
199.3±	1	9.45±	(31.0±)	3.65±	(12.0)	stockpass & drainage
200.05±	2	9.45±	(31.0±)	11.6±	(38.0)	drainage
201.5±	3	9.45±	(31.0±)	17.4±	(57.0)	old meander channel
203.1±	1	9.45±	(31.0±)	6.4±	(21.0)	drainage
204.0±	4	9.45±	(31.0±)	23.2±	(76.0)	drainage
205.3±	2	8.1±	(26.6±)	11.6±	(38.0)	drainage

Although all existing structures are currently regarded as structurally sufficient, the wooden guardrails are not crash worthy and the unprotected ends pose a hazard to traffic. They are also susceptible to structural weakening from prairie or grass fires, and eligible for replacement with culverts if extensively damaged from fire, accidents, or floods. None of the 15 bridges are considered historical.

4. System Linkage

Both proposed projects are between ongoing or pending improvements to US 12 between Roundup and near Sumatra in northwestern Rosebud County. The proposed Musselshell-East & West project's western terminus is the eastern end of the 19km East of Roundup project. The 19km East of Roundup project was awarded to contract as project number STPP 14-5(17)181 (former P.M.S. Control #A302) on March 9, 2001 and is under construction. The proposed Melstone-East & West project's eastern end is currently also the proposed STPP 14-5()207 Rosebud County Line East (P.M.S. Control #4060) project's western

terminus. Both the currently ongoing and pending projects adjoining these proposed projects involve the reconstruction of US 12 in a similar manner to that proposed for both the Musselshell-East & West and Melstone-East & West.

Overall, these proposed and ongoing projects are part of a general improvement to the US 12 route between Roundup and northwest of Forsyth that has been ongoing for the past decade. The last major upgrading on this portion of US 12 was completed nearly 50 years ago, and both the surfacing and subgrade have been exhibiting chronic failures. The proposed projects in the corridor represents about 18 percent of US 12's 154±km (96±mi) length throughout the Roundup to Forsyth section.

II. ALTERNATIVES

Alternatives for both the proposed Musselshell – East & West and Melstone – East & West projects are considered in this EA. These proposed projects adjoin on US 12 at approximately RP 196.0±. The alternatives considered include both a No-Build Alternative and three general Build Alternatives. Two of the Build Alternatives have been dropped from consideration beyond discussion in this section, but have been included primarily for compliance with *Section 4(f) of the U.S. Department of Transportation Act* (**49 U.S.C. 303**).

A No-Build Alternative is evaluated for comparison based on requirements under the *National Environmental Policy Act* (NEPA, **42 U.S.C. 4321**, et seq.), the Montana Environmental Policy Act (MEPA; **75-1-201**) and *Section 4(f)* of the U.S. Department of Transportation Act (**49 U.S.C. 303**). Under the No-Build Alternative, US 12 would receive only routine maintenance and/or overlays as needed.

Build Alternatives for both of the proposed projects would include reconstruction and realignment activities. The proposed Musselshell-East & West project has two potential alignments, which are referred to as Alternative A and Alternative B. Alternative A has been identified as the "Preferred Alternative." Alternative B was considered but eliminated due to potential impacts. One Build Alternative was considered for the proposed Melstone-East & West project. The Build alternatives for these proposed projects are described in more detail in the following sections.

A. No-Build Alternative

The No-Build Alternative would include routine maintenance of the existing roadway and structures. No construction activity would occur under this alternative. Montana highway and bridge projects are developed to meet or exceed both MDT and AASHTO current design criteria. Under this alternative, the roadway width would remain at approximately 7.9 m (26±ft.) in width. No construction costs are associated with the No-Build Alternative, however, it does not serve MDT's purpose in nominating these proposed projects.

This alternative would not improve safety or correct the geometric deficiencies of the existing alignment; however, this No-Build Alternative is retained for comparative purposes. It also does not offer any improvements to the aging and deteriorating surface and timber bridges. The roadway's subgrade would continue to exhibit chronic examples of failure. No safety improvements would be made, leaving the existing narrow and steep shoulder slopes and timber bridge railings in place.

B. Build Alternatives

1. Musselshell – East & West Project

Alternative A – MDT's Preferred Alternative

From this proposed project's westerly terminus at RP 189.3± and running east-northeast to RP 191.7±, Alternative Alignment A would follow US 12's present horizontal alignment. Variations (dips and bumps) in its vertical alignment would be flattened for a more even profile. Between RP 191.7± and RP 192.8±, the proposed centerline would be about 16 m (52.5± ft) south-southeastern of and lie parallel to US 12's present route. From RP 192.8± to RP 193.4±, the proposed alignment would curve north

(running eastbound) across the existing alignment and would briefly parallel the existing for 12 m (39± ft) to the west. It would then curve northeast crossing the existing alignment again, continuing out to 125± m (410± ft) north-northeast. Alternative A would rejoin the existing centerline at RP 194.25± and follow it to this proposed project's eastern terminus at RP 196.0±.

2. Melstone – East & West Project

The proposed Melstone project would provide a newly constructed roadway generally offset from the existing centerline. For ease of construction, minimization of traffic disruption, and the resulting cost savings, an offset alignment would be used for the majority of the project length. Approximately one quarter of the entire length will be constructed on top of the existing alignment in order to minimize wetland impacts. The portions where the proposed alignment would overlay and widen the existing alignment would occur in the following areas: from RP 196.0± to RP 196.3±, from RP 196.5± to RP 197.4±, and from RP 206.4± to RP 207.2±. This proposed alignment would cross the existing alignment at RP 199.5±, RP 202.7±, RP 203.1±, and RP 203.5±.

Locations where the alignment would generally parallel sections of the existing alignment are referred to as offsets and would occur at the following locations and are described as follows: from RP 195.35± to RP 196.5±, curve lengthened (or flattened) moving out to 7± m (23± ft) south-southeast of the present route; from RP 197.4± to RP 199.4±, offset out to 20± m (65± ft) south-southeast of present route (towards abandoned railroad grade); from RP 199.6± to RP 202.65±, offset 9± m (30± ft) out to 28± m (92± ft) north-northwest of present route; from RP 202.75± to RP 203.1±, curve lengthened moving out to 9± m (30± ft) south-southeast of the present route; from RP 203.15± to RP 203.4±, curve lengthening continued moving out to 11± m (36± ft) north-northwest of the present route; and from RP 203.6± to RP 206.4±, offset out to 18± m (59± ft) south-southeast of the present route (towards the abandoned railroad grade).

3. Alternatives Considered But Eliminated

Musselshell-East & West Alternative B

Starting at RP 191.7±, Alternative Alignment B would shift 44±m (145± ft) south-southeast and run parallel to US 12's present route over an abandoned railroad grade. This alignment would continue east-northeast on a tangent over the abandoned railroad grade for 2.85± km (1.75± mi). It would curve around the southeast side of the adjacent sandstone bluff, and proceed to the northeast on a 1.5± km (0.95± mile) tangent towards the existing alignment. The proposed alignment would then curve east-northeast to rejoin the existing centerline from RP 195.1± to the proposed project's eastern terminus at RP 196.0±. See Figure 4.

The total area of wetlands to be impacted by Alternative B would be greater than for the Preferred Alternative by approximately 0.12 ha (0.29± ac), for a total wetland impact of approximately 2.07 ha (5.12± ac). This increased impact is due to the closer proximity of the alignment to four unnamed intermittent streams and the Delphia-Melstone Canal due to avoiding Musselshell Hill.

The Alternative B alignment around the lower southeast slopes of the sandstone bluff would be adjacent to the northwest bank of the Musselshell River. It also would adjoin and require some changes in the course of the Delphia-Melstone Ditch. Therefore, both construction activities and permanent features resulting from this alternative would have more impacts on species living both in and adjacent to those waterways than those associated with Alternative A.

This alternative was proposed in order to avoid the hill between RP 193.5± and RP 195.0±, creating a more direct and straight alignment for this portion of the corridor. However, it became evident that Alternative B would likely entail substantial impacts to more of the surrounding environment. For example, the Delphia-Melstone Canal would be impacted, as approximately 300 m (985± ft) of its length would need to be relocated. This alternative would also require construction through an undisturbed section of land and additional impacts to the Musselshell River.

Based on the potential for greater impacts to wetlands with alignment Alternative B, this alternative has been eliminated from further consideration.

Overlay/Widen on Existing Alignment

This alternative essentially consisted of either an overlay or an overlay and widen on US 12's present alignment throughout the proposed projects in the corridor. This alternative was considered to meet the requirements of *Section 4(f)*.

The alternative did not correct the poor horizontal and vertical alignments on the proposed Musselshell-East & West project, nor did its overlay version replace the fifteen bridges throughout the proposed projects in the corridor. Beyond not correcting the fifteen timber bridges throughout the corridor, it also did nothing to improve the aging subgrade on the existing route.

Avoidance Alternatives

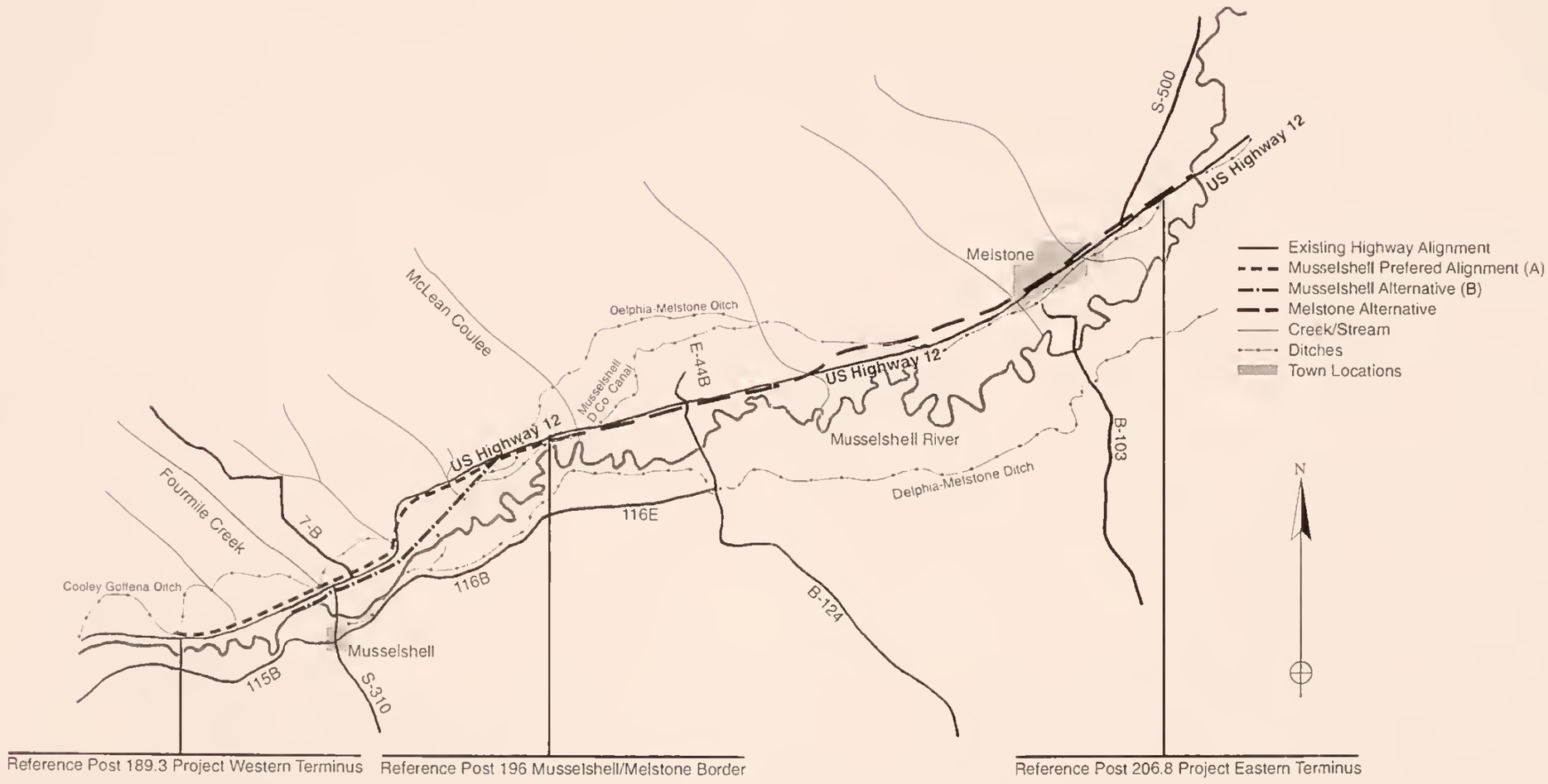
Consideration of alternatives that avoid Section 4(f) sites is required for the Nationwide Programmatic Section 4(f) Evaluation for Historic Sites. All proposed alternatives will involve either irrigation channel crossings or Archaeological/Cultural Resources site (24ML398) impacts. An Avoidance Alternative southeast of the Musselshell River would require at least one new crossing, and impact the Lower Musselshell Canal. Therefore, the only practicable route would be up to 2.6±km (1.5±mi) north of US 12's present alignment.

An Avoidance Alternative alignment running northwest of the present highway would involve extensive grading over the bluffs along the Musselshell Valley's northeastern side between RP 195± and RP 202.5±.

An Avoidance Alternative for both the Cooley-Goffena Ditch (24ML373) and the Twenty One Guns site (24ML398) between RP 189.6± and 190.4± near the proposed Musselshell-East & West project's beginning would need to "shift" that pending action's alignment southeast. However, such a move would result in both additional wetlands impacts and embankment encroachment along the Musselshell River's northwest bank.

Alternative B under the Musselshell-East & West section and the Avoidance Alternatives have been dropped from further consideration. This was due to the inability to correct one or more of the existing problems relating to the route's age and alignment, greater impacts on water resources, higher construction costs relating to the longer route's extensive earth and rockwork, and new bridges necessary.

Figure 4
Alignment Alternatives



TOTAL LENGTH OF CORRIDOR 27.7 kilometers (17.2 miles)

III. IMPACTS

This section provides an assessment of how the proposed projects are likely to affect the social, economic, and environmental factors and resources. The impacts and effects of the Preferred Alternative are compared to the No-Build Alternative. Impacts are categorized by social, economic, environmental, construction, and cumulative impacts.

A. Social

This section includes impacts on the traveling public and/or other users of the existing and proposed transportation facility. It also includes any relocations, displacements of any ethnic minorities (or low income groups), and/or impacts on community cohesion.

1. Travel/Access

US 12 is the sole east-west route through Musselshell County, providing a connection to Roundup on the west, and I-94 at Forsyth on the east. While traffic volumes are relatively moderate for a Primary Highway, it is the most direct route between southeastern and central Montana.

Emergency services for the two project study areas are provided by the Musselshell County Sheriff's Office. One quick response unit located in Musselshell and another quick response unit in Melstone are the primary vehicles serving the study area. Additional service to the area is provided by the Roundup Ambulance Service located in Roundup. For hospital care, study area residents must travel to Roundup Hospital.

Fire prevention services are composed of citizen volunteers that have a combined fleet of approximately nine or ten fire trucks, with three to five servicing Musselshell and Melstone, and six trucks providing service out of Roundup. Law enforcement is provided by the Musselshell County Sheriff's Office and Montana Highway Patrol.

US 12 is identified as a school bus route for its entire length through Musselshell County. Although no schools are located in close proximity to US 12, school bus service to Roundup, Musselshell, and Melstone has several stops on the route. The consolidation of small, rural schools resulted in extensive school bus routes throughout the county. The Roundup schools have twelve bus routes. Four of these bus routes use US 12, while the remaining eight at least cross US 12. In the Melstone school system, 46 percent of the students are bussed over 340±km (212±mi) on four bus routes a day. In Musselshell, one bus route operates for the K-6 school and uses US 12. No bus service is provided for the remainder of Musselshell students.

Impacts

Some bus stops along the proposed projects in the corridor have had restricted sight distances, and have been moved to "pull-off" areas. The most substantial issue identified by school bus operators is that the present highway is very narrow. This condition also applies to the emergency, fire, and law enforcement services use.

The Build Alternatives would result in the positive effect of improved access, safety, and efficiency for all area residents and travelers, service and emergency vehicles, and businesses which rely on traveling this portion of US 12 in Musselshell County.

Mitigation

Access to the properties in the corridor would be maintained during construction. Using an offset alignment will allow traffic to be directed through both project construction areas with minimal affect on travel and access using appropriate signing and flagging in accordance with the *Manual on Uniform Traffic Control Devices*. The contractor would determine if any detours would be needed at the proposed timber bridge replacements.

2. Parks and Recreation/*NL&WCF – Section 6(f)* Land

No National Land and Water Conservation Fund (NL&WCF) Act *Section 6(f)* (**16 U.S.C. 460**) properties have been identified within the vicinity of either of the two proposed projects. No acquisition of *NL&WCF - Section 6(f)* properties would occur, and there would be no impacts from the proposed projects.

3. Pedestrian/Bicycles

Pedestrian/bicyclist use in the proposed project areas is limited and very minor, and no official pedestrian or bicycle facilities are identified within either project areas.

Impacts

The No-Build Alternative would not improve safety for pedestrians/bicyclists and/or drivers.

The Build Alternatives will not have any special features (i.e.: sidewalks) for pedestrian use; however, the wider roadway and shoulders will better accommodate both pedestrian and bicycle users. It will also greatly improve visibility of both pedestrians/bicyclists and drivers using the facility. Therefore, safety for all will be enhanced/improved.

Mitigation

Impacts to pedestrians and bicyclists will be temporary and construction related.

4. Executive Order 12898/*Title VI* – Environmental Justice

Title VI of the U.S. *Civil Rights Act*, and Executive Order 12898, issued in February 1994, require that no minority or, by extension, low-income persons shall be disproportionately impacted by any project receiving Federal funds. For transportation projects, this means no particular minority may be disproportionately isolated, displaced, or otherwise subjected to adverse effects.

The proposed improvements to US 12 will not cause any displacement, and will not have any substantive impact on the location, distribution, density, or growth rate of the area's population. This is a rural corridor and the Build Alternative(s) would not affect the cohesion of any communities or divide any neighborhoods. Therefore, this proposed action would not adversely impact any ethnic, low income, or other minority groups.

Impacts

Both the No-Build and the proposed Build Alternative(s) are in accordance with E.O. 12898 and will not create disproportionately high and/or adverse impacts on the health or environment of minority and/or low income populations. The alternative(s) also comply with the provisions of *Title VI* of the *Civil Rights Act* of 1964 (**42 U.S.C. 2000(d)**, as amended) under FHWA's regulations (23 CFR 200).

Mitigation

No mitigation is required.

5. Community Facilities

This section summarizes the community and public facilities that are located adjacent to the proposed projects.

Schools
The Melstone school system has an accredited elementary school with grades one through eight and a high school for grades nine through twelve. Musselshell has an elementary school for grades K-6.

Airport
Roundup Airport is located about 3.2 km (2.0± mi) north of town along US 87 and is approximately 2.8 km (1.7± mi.) north of US 12. It is situated on 115± ha (285± ac) of land and handles roughly 40 flights per week. The airport primarily serves private businesses, air ambulances, and agricultural operators that spray crops. No commercial flights operate at this facility.

Increased timber and coal activity in the Bull Mountain area has led to increased use of the airport. Because Roundup Airport is a viable part of the county's transportation system, access to this facility is a key consideration.

Other Facilities and Services
Roundup is the closest location for a public library, hospital, and designated parks and recreation facilities.

Impacts

No impacts to community facilities are anticipated for either the No-Build or Build Alternatives.

Mitigation

No mitigation is required.

B. Economic

This section covers changes in land use (including farmlands), and impacts (if any) on local/regional economies by this proposed action.

1. Land Use/Right-of-Way/Easements

Land use within Musselshell County has not notably changed over the past few decades. Musselshell County is approximately 488,477 hectares (1,207,040 acres) in size. As shown in Table 5, land uses in Musselshell County include rangeland, woodland, and crop lands.

Table 5
Musselshell County Land Use

Land Classification	Hectares (Acres)	Percent of Total
Rangeland/Grazing	322,164 (820,787)	68 %
Woodland	107,465 (265,549)	22 %
Crop	29,308 (72,422)	6 %
Pasture	14,654 (36,211)	3 %
Urban/Built-up/Water Service	4,885 (12,070)	1 %

Source: Musselshell County Comprehensive Plan 1973-1993.

Land uses specifically adjacent to the proposed projects are consistent with the overall land uses for Musselshell County. Land use is primarily agricultural (cropland) and ranching (grazing), with scattered rural residential. Melstone includes more commerce-oriented land uses than does the county. Cattle and sheep are the predominant agricultural products. There are some fields of grain near RP 196.0± with the majority being hay fields. One feedlot operates along US 12 southeast of the curve near RP 202.55±.

Timber is another land use that is represented along the two proposed projects. The east end of the Bull Mountains is located to the south of the proposed projects, and timber from these mountains supports several sawmills in the county. Timber from both that area and the ridges northwest of the sandstone bluff on the Musselshell-East & West project supports the few small sawmills in the county. One such mill is beyond the old Geneva town site and southeast of US 12 at RP 199±.

Mineral development for energy was a historic land use in the vicinity of these proposed projects. Both coal and oil extraction in the form of underground mining and drilling, occurred in eastern Musselshell County, and both were a component of Melstone's economy. The limited amounts and relatively low quality of those minerals found in the area, as well as market price fluctuations, have resulted in little extraction there in recent years. However, activity at the various coal and oil deposits may increase in the future should energy demands and prices be raised substantially.

In the town of Musselshell, the predominant land use is residential, followed by public/semi-public uses. In 1973, only one industrial use and four commercial uses were identified. (Musselshell is located approximately 0.8 km (0.5 mi) off of US 12.) The industrial site has since become a privately owned facility, and the gas station is closed.

As shown in Table 6, Melstone's largest land use is composed of transportation roadway, which represents 42.4 percent of total land use and 64 percent of the developed land use.

Table 6
Land Use in the Town of Melstone

Land Classification	Hectares (Acres)	Percent of Developed Land	Percent of Total
Residential	6.8 (16.9)	26.0	17.2
Commercial	0.68 (1.7)	2.6	1.7
Industrial	1.05 (2.6)	4.0	2.6
Public and Semi-Public	0.89 (2.2)	3.4	2.3
Transportation Roadway	16.9 (41.7)	64.0	42.4
Vacant	13.5 (33.3)	-	33.8
Total	39.9 (98.5)	-	100.0
Developed Area Total	26.4 (65.2)	-	66.2

Source: Musselshell County Comprehensive Plan 1973-1993.

The Bureau of Land Management (BLM) owns two parcels of land located in the study area: 9N R-28E Section 26 NE of northwest quarter; and the northern half of the parcel 9N 28E Section 30. However, both pieces of property are located at least 0.8±km (0.5±mi) away from US 12. Therefore, BLM land would not be impacted by the proposed projects.

Impacts

There would be no impacts to land uses under the No-Build Alternative. Existing and planned land use conditions and trends are not expected to change. Overall, the make-up of the existing land uses would not be impacted by the proposed projects, though minor amounts of property would be acquired for construction of the projects.

Two recent studies were highlighted during a session on induced travel at the annual Transportation Research Board meeting in January 2000. These reports found that there was an increase in vehicle travel with an increase in roadway expansion; however, they concluded that this traffic increase resulted from population growth, increased income, and other demographic factors, not from the highway construction. Conference participants agreed that highway expansion is intended to accommodate population growth and economic expansion, and that some of the new capacity is anticipated to be used by the new population, but such expansions are not intended to promote such growth.

In the case of the proposed improvements in the Musselshell-East & West and the Melstone-East & West corridors, even though no additional lanes are proposed, the geometric improvements would still result in some additional capacity in the peak periods because of overall improvements in safety and operation of the facility. This minimal increase in capacity would not be of a magnitude to induce unplanned growth or development in the study area. The proposed project is not intended to induce growth, but instead to bring the condition of the road up to current standards in order to accommodate existing and anticipated growth. Population growth will occur independent of the completion of the proposed project.

Table 7 outlines the required right-of-way.

Table 7
Proposed Right-of-Way/Easement/Construction Permits Areas

Proposed Project	Right-of-Way		Easements		Construction Permits	
	ha	(ac)	ha	(ac)	ha	(ac)
Musselshell – East & West	61.65±	(152.33±)	2.09±	(5.16±)	1.08±	(2.66±)
Melstone – East & West	113.66±	(280.85±)	0.61±	(1.50±)	0.87±	(2.16±)
Totals	175.31±	(433.20±)	2.70±	(6.66±)	2.01±	(4.96±)

Approximately 59.9 ha (148.0±ac) of additional/new right-of-way would be required throughout the project corridors and new right-of-way limits would be established. An additional 0.90±ha (2.23±ac) of land will be required for a construction permit on the Melstone - East & West project and 1.11±ha (2.73±ac) for the Musselshell-East & West project. No relocations of residential or commercial buildings are required for either proposed project. Additionally, four signs could potentially be impacted by roadway acquisitions along the Melstone - East & West project. Relocation of a well for livestock watering will also be necessary.

Mitigation

The largest amount of additional right-of-way is from less than half of a parcel along the proposed Melstone – East & West project's southwest side in Melstone. It is part of the former railroad right-of-way, and is currently owned by an aerial crop spraying service. That former railroad's grade was leveled after its abandonment after 1980, and part of it beyond this proposed project's southeast right-of-way is used as a private airstrip. Operations at that parcel will not be impaired by this proposed project, and the alignment will be farther away from lots along Melstone's southeast side to avoid greater impacts.

All proposed right-of-way, easements, and construction permits for both projects will use the minimum amounts necessary consistent with the construction limits and working/maintenance zones for each. All lands needed for right-of-way are from private ownership and will be acquired in accordance with both the *Uniform Relocation Assistance and Real Property Acquisition Act* of 1970 (**P.L. 91-646**), and the *Uniform Relocation Act Amendments* of 1987 (**P.L. 100-17**). Compensation for right-of-way acquisition is made at "fair market value" for the "highest and best use" of the land.

2. Farmlands

The majority of land adjacent to the proposed projects is utilized for agricultural purposes. The 1981 *Farmland Protection Policy Act* (*FPPA* – **7 U.S.C. 4201**, *et seq.*) requires the examination of impacts from proposed highway projects prior to the acquisition of farmland. Pursuant to the FPPA, an inventory of farmland in the study area has been completed. According to a review of the Important Farmland mapping provided by the U.S. DEPARTMENT OF AGRICULTURE's Natural Resources Conservation Service (NRCS), no prime farmland has been identified within the vicinity of the proposed projects.

Impacts

According to a review of Musselshell County's Statewide Important Farmlands inventory from the NRCS, the "Farmlands of Statewide Importance" have been identified within the proposed projects in the corridor in Table 8.

Table 8
Farmlands of Statewide Importance Impact Areas

Station Numbers	RP - RP	Township	Range	Section	Existing		Proposed	
					ha	(ac)	ha	(ac)
330 - 339	190 – 190.5	9	29	30	2.7	6.7	1.4	3.4
Sections of 348 – 394 (all same parcel)	191 – 191.5	9	29	20SW1/4	3.1	7.6	2.6	6.4
	192.5 - 193	9	29	21NE1/4				
	193 – 193.5	9	29	16SE1/4				
	193.5 - 194	9	29	16NE1/4				
Sections of 395 – 412 (all same parcel)	194.2 – 194.4	9	29	15NW1/4	3.5	8.6	2.6	6.5
	194.4 – 194.5	9	29	15NE1/4				
	194.5 – 195	9	29	10SE1/4				
413 - 416	195.5 - 196	9	29	11SW1/4	1.1	2.7	0.8	2.0
191 - 194	200.5 - 201	9	30	3NE1/4	0	0	0.6	1.5
Approximate Total*					**10.4**	**25.6**	**6.6**	**16.3**

*Values are approximate as they were determined using NRCS mapping(at a 1:24000 scale) in comparison with MDT Right-of-Way plans (STPP 14-5(12)196 – 12/21/00 and STPP 14-5(22)181 – 11/28/01).

Those listed under the column labeled "Existing" are currently within US 12's existing right-of-way regarding the No-Build Alternative impacts. The amounts listed under the "Proposed" column will be the additional impacts from MDT's Preferred Alternative for these proposed projects.

Mitigation

In accordance with the FPPA, a Farmland Conversion Impact Rating Form (#AD-1006) has been completed for both of these proposed projects. The total points on that form is 130, which is less than 160. Therefore, under the provisions of 7 CFR 658.4 (c), no additional consideration for protection is necessary. A copy of this completed #AD-1006 form is in Appendix A.

3. Irrigation

The Musselshell Valley's middle reach has extensive irrigation systems, and features associated with those facilities are within the proposed projects in the corridor. These include the Chandler, Cooley-Goffena, Delphia-Melstone, Handel Brothers, and the Musselshell Ditch Companies' irrigation ditches which were referenced in the Avoidance Alternatives section. Tables 9 and 10 identify the locations of these facilities.

Impacts

The No-Build Alternative will have no impact to irrigation facilities.

All crossings are proposed to be replaced under MDT's Preferred Alternative. Ditches on these systems are proposed to be crossed twice, while the majority of impacts from both proposed projects will be crossings of feeder ditches to crop lands.

Impacts to irrigation facilities under the Build Alternatives would include impacts to irrigation ditches and bridges. Some ditches would require segmental relocation and others would require modification. All bridges would be replaced with reinforced concrete boxes, stock passes, or pipes. Irrigation impacts for the Musselshell – East & West project include those indicated in Table 9. A total of seven irrigation ditches (four bridge crossings) would be impacted by this proposed project.

Table 9
Musselshell - East & West Build Alternative Irrigation Impacts

Irrigation Feature	Reference Post	Impact
Ditch	189.5±	Relocation
Ditch	190.3±	Relocation
Bridge	191.3±	Replacement
Bridge	191.9±	Replacement
Bridge	195.2±	Replacement
Bridge	195.4±	Replacement
Ditch	195.6±	Modification

Source: MDT 2001.

Irrigation impacts related to the Melstone – East & West project are identified in Table 10. A total of 17 ditches (five bridge crossings) would be impacted by this proposed project.

Table 10
Melstone - East & West Build Alternative Irrigation Impacts

Irrigation Feature	Reference Post	Impact
Bridge	196.8±	Replacement
Ditch	196.9 – 197.5±	Relocation
Ditch	198.2±	Modification
Ditch	1984.4 – 198.7±	Relocation
Ditch	198.7±	Modification
Ditch	199.4±	Modification
Ditch	199.6±	Modification
Bridge	200.3±	Replacement
Ditch	200.4±	Modification
Ditch	201.8±	Modification
Ditch	202.6±	Modification
Bridge	203.4±	Replacement
Ditch	204.2 – 204.6±	Modification
Bridge	204.6±	Replacement
Ditch	205.2 –205.4±	Modification
Bridge	205.5±	Replacement
Ditch	206.0 – 206.1±	Modification

Source: MDT 2001.

Mitigation

All existing irrigation would be perpetuated under the No-Build and Build Alternatives. MDT has contacted each ditch owner to discuss potential impacts. Impacted irrigation facilities would be relocated in consultation with property owners to minimize impacts to farming operations.

Photo 3: Businesses in the Town of Melstone

4. Local and Regional Economics

Table 11 below indicates that the primary community activity for Musselshell County is the services industry, which represents 25 percent of industry within the county. The services industry is a broad category encompassing numerous services from telecommunications and food to health care, among others. Sharing second ranking is

farming/agriculture and retail trade at 19 percent each. Government ranks third at 14 percent and remaining industries range from two to six percent.

Table 11
Industry in Musselshell County

Industry	Employed	Percentage
Farm, Agriculture, Forestry, and Fisheries	364	19 %
Retail Trade	371	19 %
Mining	111	6 %
Manufacturing	42	2 %
Construction	123	6 %
Finance, Insurance, Real Estate	81	4 %
Transportation & Public Utilities	72	4 %
Government	274	14 %
Wholesale Trade	34	2 %
Services	487	25 %
Total	**1,959**	**100 %**

Source: BearFacts - Regional Economic Information System, Bureau of Economic Analysis (US Department of Commerce), May 1998.

Impacts

Economic impacts as a result of the No-Build Alternative would include the cost and time lost in the movement of goods and services due to accidents. There would be no physical impacts to commercial businesses in the corridor.

The proposed projects may impact commercial business in the short term due to delays related to construction. The businesses located adjacent to the proposed project corridor may be additionally inconvenienced during construction due to short-term access changes.

The long-term impacts of the proposed projects would be safer and more efficient conditions for motorists and pedestrians, resulting in time and cost savings to individuals and businesses.

The right-of-way required for the proposed project represents a minor loss of property from the tax rolls and will have a negligible effect on revenues for Mussellshell County.

Mitigation

Public informational meetings for both proposed projects have resulted in consultation with businesses and adjacent landowners to minimize economic impacts. Such minimization includes coordination with these proposed projects' contractors to avoid or reduce delays or obstructions to commerce.

The proposed Melstone-East & West project's alignment will be at least 10±m (33±ft) beyond US 12's present route to minimize impacts on businesses and residences along the southeast side of Melstone.

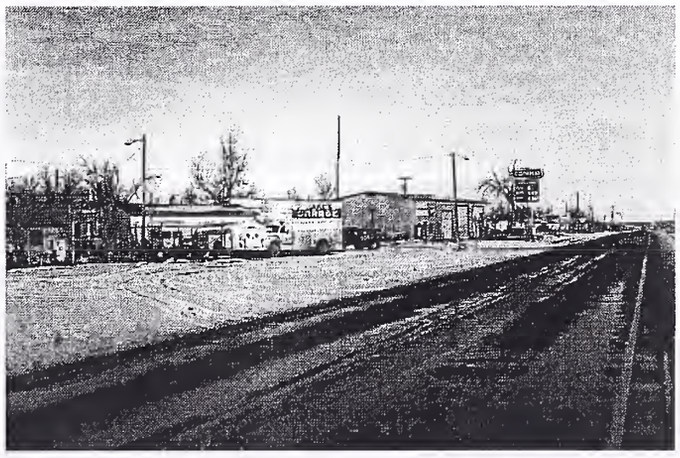


Photo 4: Businesses located in the town of Melstone.

To minimize impacts to commercial businesses, the proposed projects were conceptually designed to be sensitive to the existing and planned businesses. Consultation with business owners to understand their operations was instrumental in developing the conceptual design to address their potential concerns.

While relocations of businesses are not anticipated for the proposed projects at this time, MDT would provide relocation payments and services required under the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, if needed.

C. Environmental

This section covers the biological, historic/cultural, and hazardous waste impacts from the proposed projects.

1. Wetlands (E.O. 11990)

All wetland areas that may be affected by the proposed project(s) are defined under the *U.S. ARMY - Corps of Engineers' (CoE) 1987 Wetlands Delineation Manual criteria.* These criteria require the presence of: 1) hydric soils, 2) hydrophytic vegetation, and 3) a hydrologic regime for an area to be classified as a wetland. Areas meeting all three parameters are rated by function, value and classification. A wetland's function is based on its ecological relationship absent any artificial influences. Its value is the benefit derived from one or more of those functions and the physical characteristics associated with the wetland. Wetland functions and values are rated as low, moderate, or high. Wetlands are ranked by four classifications using their functions, values, and other criteria with Category I being the highest and IV being the lowest.

Wetlands are regulated by *Section 404 of the Clean Water Act and Executive Order 11990 Protection of Wetlands.* Under both CoE (33 CFR 328.3) and EPA (40 CFR 230.0) regulations, "wetlands" are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

A wetland survey was performed along both proposed project corridors on November 13 and 14, 1999. Procedures used for wetland delineation within the study area were in accordance with the *1987 Corps of Engineers (COE) Wetland Delineation Manual.* The wetland indicator status of plant species observed in the study area was derived from the *National List of Plant Species that Occur in Wetlands for Northwest (Region 9)* (Reed 1988).

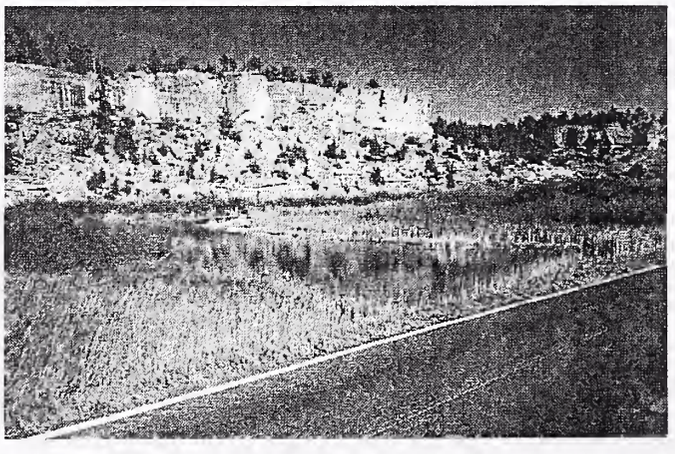


Photo 5: Wetland # 1, looking northeast from US 12.

A total of 31 locations for both projects in the corridor were assessed to determine whether they included the three parameters of wetlands. Of these 31 assessments, three sites were found to be non-wetlands because of absence of one or more mandatory parameters; the remaining 28 sites were found to have all three parameters present. Of these twenty-eight sites, eight linear ditches were

found to be non-jurisdictional wetlands. The remaining 20 sites were determined to be jurisdictional wetlands. The total area of these 20 wetlands is 1.95± ha (4.82± ac).

Wetlands 1 through 8 fall within the Musselshell - East & West project and Wetlands 9 through 20 fall within the Melstone - East & West project. These wetlands are described in Table 12 and shown in Figure 5.

Table 12
Wetland Impact Areas

EA Wetland	Wetland No.	BRR No.	RP	Description
1	323LR	322LR	189.35± to 189.6±	old meander channel
2	347.2LR	352LR	191.05±	old meander channel
3	348L	348L	191.1±	old meander channel
4	352LR	352LR	191.4±	old meander channel
5	357LR	357LR	191.65±	Fourmile Creek
6	361.3LR	361.5LR	191.9±	unnamed intermittent stream
7	416.6LR	416.2LR	195.45±	unnamed intermittent stream
8	419.9LR	419.9LR	195.65±	Delphia-Melstone Canal
9	422.75LR	422.7LR	195.8± to 195.85±	East of McLean Coulee
10	112.6LR	112.6LR	196.45±	McLean Coulee
11	158.4LR	158.4LR	199.3±	unnamed intermittent stream
12	170LR	170LR	200.05±	unnamed intermittent stream
13	171L	171LR	200.1±	ditch
14	193.5LR	193.5LR	201.25± to 201.5±	old meander channel
15	206.9L	207LR	202.3± to 202.35±	Delphia-Melstone Ditch
16	218.7LR	218.6LR	203.0± to 203.1±	unnamed intermittent stream
17	233.3LR	233.3LR	204.0±	ditch
18	238.6L	238.2L	204.3±	ditch
19	249.5R	248R	204.9± to 205.1±	ditch
20	254LR	253.9LR	205.3±	unnamed intermittent stream

Sources: MDT Wetland Plan Set dated 10/11/01, and Biological Resources Report, BRW, Inc., 1999.

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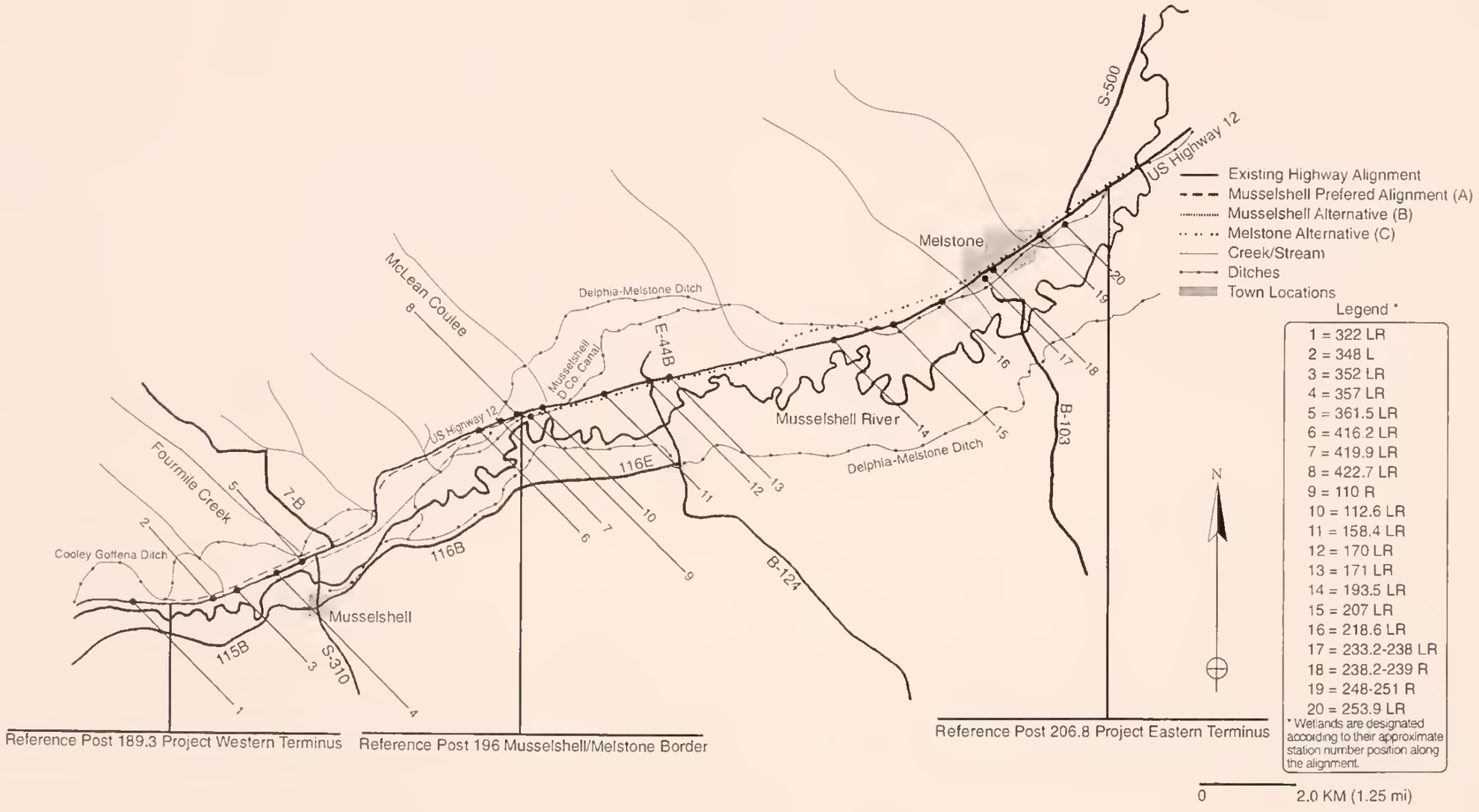
Figure 5
Jurisdictional Wetlands



Impacts

No impacts to wetlands would be experienced under the No-Build Alternative.

A total of 19 wetlands would be impacted as a result of the Build Alternatives. Wetland impacts would result from reconstruction activities including filling and grading for a wider roadbed, road widening, realignment of the existing centerline, and replacement of culverts and bridges—all actions required to bring the highway up to MDT's current design standards.

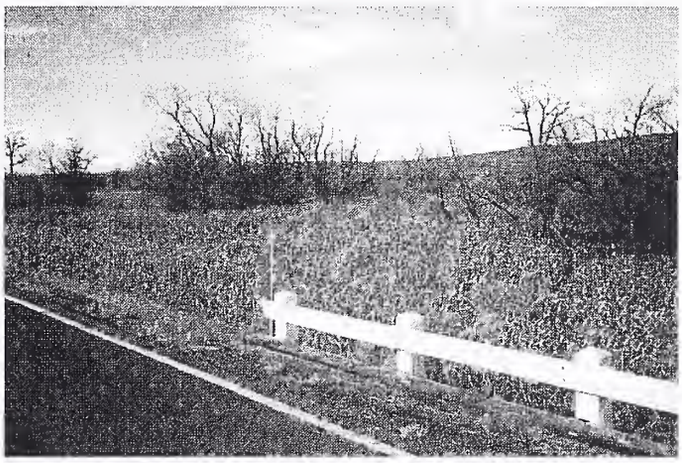


Photo 6: Wetland # 14, looking northwest from US 12.

Table 13 summarizes the impacts at individual wetland locations. These impacts areas/amounts are subject to change following ongoing grade adjustments on both proposed projects. The total area of wetlands to be impacted by the construction of the Musselshell - East & West project is approximately 0.934 ha (2.30 ac), or 13 percent of the total area of delineated wetlands in the project's corridor. A total of approximately 1.046 ha (2.59 ac) of wetlands would be impacted in the Melstone - East & West project, or 28 percent of the total area of delineated wetlands in the project corridor. Combined, both projects would impact approximately 1.98 ha (4.89 ac). This impact area represents approximately 18 percent of the total amount of delineated wetlands that are located within both project corridors.

Wetlands are categorized on a I to IV rating system with I being the highest quality wetland and IV being the lowest quality wetland. A breakdown among wetland categories of the total amount of wetlands likely to be impacted by the Preferred Alternative is provided below.

Wetland Category	Jurisdictional Area Impacted	Non-Jurisdictional Area Impacted
Category I	none	none
Category II	0.59± ha (1.46± ac)	none
Category III	0.98± ha (2.42± ac)	none
Category IV	0.40± ha (1.00± ac)	0.46±ha(1.14±ac)

Table 13
Individual Wetland Data Summary for Jurisdictional Wetlands

Wetland	Overall Assessment Area Rating *	Approximate Area of Entire Wetland ha (ac)	Approximate Area of Impact ha (ac) **	% of Total Wetland Area Impacted
Musselshell - East & West Project				
1 - 322 LR	II	2.03 (5.02)	0.402 (0.99)	20 %
2- 348 L	III	0.06 (0.15)	0.009 (0.02)	15 %
3 - 352 LR	II	3.33 (8.23)	0.189 (0.47)	6 %
4 - 357 LR	III	0.26 (0.64)	0.244 (0.60)	94 %
5 - 361.5 LR	III	0.55 (1.36)	0.048 (0.12)	9 %
6 - 416.20 LR	IV	0.18 (0.44)	0.014 (0.03)	8 %
7 - 419.90 LR	IV	0.07 (0.17)	0.018 (0.04)	26 %
8 - 422.7 LR	IV	0.61 (1.51)	0.010 (0.01)	2 %
Musselshell Total		**7.09 (17.51)**	**0.934 (2.30)**	**13 %**
Melstone - East & West Project				
9 - 110 R	IV	0.07 (0.17)	None	none
10 - 112.60 LR	IV	0.61 (1.51)	0.051 (0.13)	8 %
11 - 158.4 LR	IV	0.25 (0.62)	0.006 (0.01)	2 %
12 - 170 LR	III	0.37 (0.91)	0.023 (0.06)	6 %
13 - 171 LR	IV	0.04 (0.10)	0.026 (0.06)	65 %
14 - 193.5 LR	III	1.20 (2.97)	0.648 (1.60)	54 %
15 – 207 LR	IV	0.06 (0.15)	0.011 (0.03)	18 %
16 - 218.60 LR	IV	0.25 (0.62)	0.023 (0.06)	9 %
17 - 233.20 – 238 LR	IV	0.49 (1.21)	0.019 (0.05)	4 %
18 - 238.20 – 239 LR	IV	0.04 (0.10)	0.045 (0.11)	100 %
19 - 248 – 251 R	IV	0.18 (0.44)	0.183 (0.45)	100 %
20 - 253.90 LR	IV	0.25 (0.62)	0.011 (0.03)	4 %
Melstone Total		**3.81 (9.41)**	**1.046 (2.59)**	**28 %**
Combined Totals		**10.9 (26.9)**	**1.98 (4.89)**	**18 %**

* Rating: I=highest, IV=lowest
** Impact areas are subject to change following ongoing changes in the vertical alignment on both proposed projects.
Sources: MDT Wetland Plan Set dated 10/11/01, and Biological Resources Report, BRW, Inc., 1999.

Avoidance and Minimization

Compliance with *Section 404* of the Clean Water Act requires serious consideration of practicable design measures for the avoidance and minimization of wetland impacts from dredge and fill activities.

Due to the location and orientation of most of the wetlands in the corridor (perpendicular to the existing alignment) impacts are unavoidable.

In order to minimize impacts to wetlands, Alternative A was selected over Alternative B on the proposed Musselshell-East & West project. Alternative B would have impacted an additional 0.12±ha (0.29±ac) of Category II and III wetlands.

The proposed alignment will also remain on or close to the existing alignment through those areas with high quality wetland resources to minimize impacts. Further minimization of impacts to wetlands would be attained by holding the sub-grade elevation as low as possible and reducing the width of the roadbed. Steepening embankment slopes in areas where practicable is

another method of minimizing wetlands impacts. Further reductions in wetland impacts may be achieved during final design.

Mitigation

Section 404 of the Clean Water Act (33 U.S.C. 1251-1376) requires lost wetland be mitigated with replacement on-site, and in-kind where feasible. Due to site conditions related to right-of-way limits, mitigation within the proposed project corridor is not practical. In recognition of E.O. 11990, MDT accounts for all wetland impacts in the form of a "Wetland Ledger".

Wetland replacement for these projects would be provided as part of the re-designed sewage lagoons outside the town of Roundup. This proposed mitigation plan has been approved by the U.S. Environmental Protection Agency.

2. Floodplains

Executive Order 11988 and FHWA's floodplain regulations (23 CFR 650, Subpart A) require an evaluation of this proposed project to determine if any of its alternatives encroach on the "base" floodplain. The "base" floodplain is defined as the area covered by water from a "100-year" flood. The "100-year" flood represents an event which has approximately a one percent chance of occurring in any given year.

The Federal Emergency Management Agency (FEMA) has delineated approximate 100-year floodplain boundaries for the following in the study area:

- Musselshell River
- Fourmile Creek
- Coulee/ McLean Creek
- unnamed creek

The existing alignment crosses each of these drainages, resulting in transverse encroachments of the floodplains under existing conditions. In general, the northern boundary of the Musselshell River Floodplain is the old railroad embankment with two isolated areas north of the railroad, which are backwater areas.

Impacts

No additional impacts to floodplains would occur under the No-Build Alternative. Realignment of US 12 under the proposed projects would shift the alignment further away from the areas delineated as Musselshell River Floodplains.

Table 14 summarizes floodplain encroachments associated with the Build Alternatives.

Table 14
Floodplain Encroachments

Floodplain	Longitudinal Impact	Transverse Impact
unnamed creek "RP"(MP) 190.1± to 190.4±	No	Yes
Fourmile Creek "RP"(MP) 191.5± to 191.7±	No	Yes
Coulee/McLean Creek "RP"(MP) 196.1± to 196.3±	No	Yes
Musselshell River "RP"(MP) 201.5± – 201.7±	Yes	No

Source: Flood Hazard Boundary Maps, U.S. Dept. of Housing & Urban Redevelopment, 1979.

Mitigation

These proposed projects will not promote or encourage development within the delineated floodplain, nor increase flood liability hazards from its construction. These projects are therefore considered to be in compliance with E.O. 11988, and no mitigation is required. The Musselshell County Floodplain Development Permits for these projects have been approved as of February 20, 2002 and can be obtained from MDT.

3. Seeding/Erosion Control

Construction of these proposed projects, including replacement of all existing pipes and structures, will cause both temporary soil disturbances, and may cause short-term siltation into the adjacent waterways.

Average precipitation amounts in the vicinity of these proposed projects in the corridor are about 355 mm (14±in) annually. Storm events with up to 25±mm (1±in) of precipitation can and do occur in the form of cloudbursts lasting up to six hours on an average of once every two years. Despite the relatively dry climate, some vegetative cover exists both along the present route's shoulders and out to the right-of-way limits. This cover is principally native grasses of forbs and usually retains sediments during all but the most severe storm events.

Mitigation

MDT will re-establish a permanent desirable vegetation community with respect to areas disturbed by the proposed construction in accordance with **7-22-2152**, and **60-2-208 M.C.A.** A set of revegetation guidelines will be developed by MDT that must be followed by the contractor. These specifications include instruction on seeding methods, dates, mix components, and the types and amounts of mulch and fertilizer. Seed mixes include a variety of species to assure that areas disturbed by construction are stabilized by vegetative cover. The Seeding Special Provisions developed for this proposed project will be forwarded to the Musselshell County Weed Board for approval.

An Erosion Control Plan (Storm Water Pollution Prevention Plan [SWPPP]) will be submitted to MDEQ's Permitting and Compliance Division in compliance with their *Montana Pollutant Discharge Elimination System Regulations* (ARM 16.20.1314) for this proposed project. BMPs will be included in the design of this Plan using guidelines as established in MDT's Highway Construction Standard Erosion Control Work Plan. The objective is to minimize erosion of disturbed areas during and following construction of this proposed project.

4. Water Quality

The Musselshell River in the project study areas is part of the Lower Missouri watershed region and the Musselshell Sub-basin. The stretch of the Musselshell that runs through this area is located in **HUC 10040202** and flows from the HUC boundary southwest of Roundup to Flatwillow Creek. The Musselshell River is the only perennial, naturally occurring river within the study area. According to data from the Montana Department of Environmental Quality (MDEQ), an 185± km (115± mi) reach of the Musselshell River was listed as impaired on the 2000 303(d) list, due to flow alteration, other habitat alterations, and riparian degradation. Probable sources listed for impairment include: agricultural activities, channelization, flow regulation/modification, and stream bank and shoreline modification/ destabilization. The Musselshell River was designated on the 2000 list by DEQ as having a low priority for Total Maximum Daily Load (TMDL) development.

Although within the middle Musselshell River's sub-basin, all streams crossed by the present route are intermittent. Eleven timber bridges span the drainages. The other eight intermittent stream crossings along the existing alignment are in pipes listed in the following table.

Table 15
Intermittent Stream Crossings in Culverts

Proposed Project Name	RP Location	Type	Size	
			mm	(in)
Musselshell-East & West	194.9±	RCP	610±	(24)
Melstone-East & West	199.1±	RCP	900	(35.4±)
Melstone-East & West	202.2±	RCP	914±	(36)
Melstone-East & West	202.5±	RCP	1219±	(48)
Melstone-East & West	202.8±	RCP	610±	(24)
Melstone-East & West	204.3±	CSP	610±	(24)
Melstone-East & West	205.0±	CSP	914±	(36)
Melstone-East & West	205.9	CSP	914±	(36)

Impacts

There would be no impacts to water quality under the No-Build Alternative.

The impaired uses, which may be impacted for the proposed projects are aquatic life support and warm water fishery. However, no permanent impacts to water quality would result from the proposed build alternatives for these projects. Some in-stream work for meander loops or various intermittent drainage crossings and irrigation ditches would be necessary to replace the existing timber bridges and/or culverts for both proposed projects. Temporary impacts associated with the replacement of existing culverts and timber bridges would be minimized during construction

with the implementation of BMPs. The projects would not involve any direct disturbance of the Musselshell River. In addition, the two intermittent/perennial streams (the McLean Coulee and the Four Mile Creek) appear to be dry or have very low flows much of the year. Because of this, the proposed projects are anticipated to have minimal, if any, impacts to water quality in these streams. The replacement of existing culverts and timber bridges with new culverts would not affect the existing drainage patterns or hydrology associated with any of the unnamed drainages.

Photo 7: View of the Musselshell River from the Melstone project.

Mitigation

These proposed replacements of existing culverts and timber bridges with new culverts will not affect the existing drainage patterns or hydrology associated with any of the unnamed drainages. Two procedures to mitigate water quality are BMPs and re-vegetation.

During construction, BMPs would be utilized to minimize effects of sediment run-off during the construction period. All work will be done in accordance with the *Water Quality Act* of 1987 (**P.L. 100-4**), as amended.

Construction techniques would adhere to MDT's standard specifications for stream protection and implementation of erosion control BMPs as shown in the Erosion Control Plan (SWPPP). Prudent placement of BMPs and revegetation of drainage ways and ditches would assist in minimizing impacts to water quality. All stream and drainage crossings on this proposed project would be above the U.S. Army - Corps of Engineers (CoE's) defined headwaters. This proposed project's construction activities (including detours) in wetlands would be referenced with the request to the CoE for a *Clean Water Act - Section 404* "Nationwide" Permit.

For those construction activities not already covered by MDT's permits discussed in the permitting section of this document, the contractor will need to obtain SPA 124, 318, and Section 404 permits.

5. Threatened and Endangered Species

The **BRR** prepared for this project identified three Federally-listed Threatened/Endangered (T/E) Species within the vicinity of the proposed project(s). This identification of T/E species was conducted in accordance with *Section 7(a)* of the *Endangered Species Act* (**16 U.S.C. 1531 - 1543**), and is based on information provided by the U.S. DEPARTMENT OF THE INTERIOR's Fish & Wildlife Service (USFWS). Table 16 provides a list of those T/E species identified as being within the vicinity of the proposed project(s).

Table 16
Federally-listed Proposed, Threatened, and Endangered Species

Common Name	Scientific Name	Status
Bald eagle	*Haliaeetus leucocephalus*	Threatened
Black-footed ferret	*Mustela nigripes*	Endangered
Mountain plover	*Charadrius montana*	Proposed

Source: U.S. Fish and Wildlife Service.

Bald Eagle

The bald eagle was observed hunting within the study area during the November 1999 fieldwork conducted for the BRR. Prior to fieldwork, bald eagles have been observed migrating through each project corridor and occasionally wintering close to the study area. The proposed projects are considered to be outside of the three zones that comprise the bald eagle nesting territory. A bald eagle territory was established in 1999 with a nest discovered approximately 10.5 km (6.5 mi) east of Roundup. The proposed reconstruction of US 12 is several miles from this nest site and is anticipated to have no adverse effect on the fledging and nesting activities of the species. Bald eagles are not known to nest in the vicinity of the Musselshell River along its portions included in and in proximity to the project corridors.

Black-Footed Ferret

The black-footed ferret is often observed primarily in or near prairie dog colonies. Although the black-footed ferret is suspected of living in Musselshell County, no specimens or visual observations have been documented and no prairie dog colonies were observed during the field surveys of the study area.

Mountain Plover

Direct evidence of mountain plover breeding is documented east of the study area. Indirect evidence is documented west of the proposed project areas, and transient mountain plovers have been observed directly north and south of the project corridors. Based on a Montana Natural Heritage Program data search, the mountain plover has not been documented nesting or as a transient within the project corridors.

Impacts

No impacts to T/E species would occur under the No-Build Alternative.

Correspondence from the USFWS states that they foresee no substantive issues with the proposed projects with regard to listed or other protected species.

Impacts associated with the Preferred Alternative for both projects are summarized in Table 17.

Table 17
Impacts to Federally-listed Threatened and Endangered Species

Common Name	Impact
Bald eagle	May Affect, Not Likely to Adversely Affect
Black-footed ferret	No Effect
Mountain plover	No Effect

Source: U.S. Fish and Wildlife Service.

Mitigation

The possibility of eagles feeding on deer kill creates the potential for eagle/auto collisions along US 12. According to the BRR, the proposed projects may reduce the potential for this type of occurrence by increasing site distance and improving the shoulders of the new roadway.

6. Biological Resources

The BRR prepared for this project references the common terrestrial and aquatic species, and species of special concern found within the proposed project areas. A variety of big game species, small mammals, reptiles, amphibians, and avian species associated with agricultural/rangeland and the Musselshell River basin are identified.

A summary of the information provided in this proposed project's BRR is as follows:

Terrestrial Resources

Wildlife within the proposed project areas includes species typical of short-grass prairie, pine hills, and riparian/riverine habitats. Of some concern are the nests of cliff swallows observed attached to the undersides of several timber bridge structures within the corridor.

Aquatic Resources

The Musselshell River is considered a warm water zone from its reaches in the vicinity of Roundup downstream to the eastern terminus of the project corridors. As such, this reach is not suitable as a trout fishery, but does support numerous other fish species, some of which are considered game species.

Species of Special Concern

Species of special concern that could potentially inhabit the area include the peregrine falcon, a hybrid of the northern redbelly dace and finescale dace, northern leopard frog, snapping turtle, spiny softshell turtle, western hognose snake, and pale milk snake.

The peregrine falcon is known to have occupied an eyrie approximately 1.6 km (1.0± mi) east of the town of Melstone, along the Musselshell River. An element occurrence record indicates that this eyrie has a high potential for being re-occupied. The USFWS will monitor for this species five years past their time of de-listing in 1999.

Poisonous suckleya is the only plant species of special concern known to occur in Musselshell County. Element occurrences of this species are not recorded for the study area. Other plant species known to exist in counties adjacent to Musselshell County with similar habitat affinities are the round-leaved water hyssop and the dwarf wooly-head. Given that the scope of the proposed work for the proposed projects, it is unlikely that these species would be affected.

Though not known specifically for Musselshell County, several species of special concern likely to be present in this general area includes: Barr's milkvetch, little Indian breadroot, and the hot spring phacelia. Though occurrence of these species within the study area has not been recorded, there is a possibility that these species could occur in the Musselshell Hill vicinity. Minor widening of the existing roadway is not expected to impact these species, should they occur in the area.

Noxious Weeds

According to the BRR prepared for both projects, small stands of Canada thistle and spotted knapweed were observed on road shoulders and spoil piles along the two project corridors. A small infestation of dalmatian toadflax exists in the Musselshell Hill area on both sides of US 12 just east of the town of Musselshell. Additionally, a larger infestation of spotted knapweed is known to exist along the south side of US 12 directly opposite the town of Melstone.

Impacts

No impacts to terrestrial or acquatic resources and species would be caused by the No-Build Alternative.

There will be relatively little overall impact to terrestrial species and/or habitats as the proposed work will be limited to areas immediately adjacent to the new right-of-way/easement required. The vegetation and habitat that will be impacted is only a small portion of comparable plan communities within the study area. Mitigation for impacts to vegetation will be provided by seeding the disturbed areas under these proposed project's Build Alternatives (see also "Seeding," previously).

The proposed projects will have no direct impact on the Musselshell River, thus little if any impacts on any of the aquatic species identified in the BRR. Some in-stream work for meander loops or various intermittent drainage crossings and irrigation ditches would be necessary to replace the existing timber bridges or culverts for both proposed projects. Temporary impacts to aquatic species during construction can be expected, but would be minor and of short term duration.

In addition, the two intermittent/perennial streams (the McLean Coulee and the Four Mile Creek) appear to be dry or have very low flows much of the year, and therefore do not likely have spawning habitat. Because of this, the proposed projects are anticipated to have minimal if any effects on spawning habitat and fish species at these locations.

Mitigation

According to correspondence from the USFWS dated March 01, 2001, demolition of the bridges for the proposed projects should occur outside of the nesting season of the cliff swallow (May 15 through August 31). A special provision would be included with the plans for the proposed projects stating that removal of the existing bridge structures would occur outside the nesting season.

Construction techniques will adhere to MDT's standard specifications for stream protection and implementation of erosion control BMPs as shown in the Erosion Control Plan (SWPPP). Prudent placement of BMPs and revegetation of drainage ways and ditches will assist in minimizing impacts to aquatic resources. Due to the fact that Four Mile Creek and McLean Coulee are normally dry or have very low flows much of the year, adhering to a construction schedule that avoids spring and fall fish spawning times is not necessary for the proposed projects.

For those construction activities not already covered by MDT's permits discussed in the permitting section of this document, the contractor will need to obtain SPA 124, 318, and Section 404 permits.

7. Cultural/Archaeological/Historical Resources

Historic and cultural resources are defined in Section 301 of the National Historic Preservation Act (NHPA) of 1966, as amended, as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP) [16 USC 470W]." Cultural resources are determined eligible for listing on the NRHP through consideration of established criteria. In order to be eligible for listing on the NRHP, the property must be important in American history, architecture, archaeology, engineering, or culture, while also possessing integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, properties must meet at least one of the following criteria:

A. Association with events that have made a significant contribution to the broad patterns of the area's history.

B. Association with the lives of persons significant in the area's past.

C. Embodiment of distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant distinguishable entity whose components may lack individual distinction.

D. Has yielded, or may be likely to yield, information important in prehistory or history.

The cultural resources inventory for this corridor was conducted in compliance with federal guidelines, including *Sections 106 and 110 of the NHPA*, 36 CFR 800. In compliance with these laws and regulations, and specifically 36 CFR 800, professional cultural resource specialists conducted a survey to identify resources listed on or eligible for listing on the NRHP that are in the study area of the proposed projects.

The research methods utilized to identify cultural resources potentially impacted by the proposed projects included a review of the Montana State Historic Preservation Office's (SHPO) database for known cultural resources, referred to as Cultural Resource Information Systems Report (CRIS), and a search for literature on each project area, referred to as Cultural Resource Annotated Bibliography System (CRABS).

Of the 15 timber bridges in the corridor, none have been identified as historic bridges.

Musselshell – East & West
A cultural resource survey of the project area was conducted in 1990. SHPO concurred in the NRHP eligibility of three historic sites and two petroglyph sites. The sites are: the Chicago, Milwaukee, St. Paul & Pacific Railroad (24ML369), the Goffena Ditch System (24ML373), the Handel Grain Elevator (24ML381), the Four Horses (24ML397) and the Twenty One Guns (24ML398) rock art sites.

The Chicago, Milwaukee, St. Paul & Pacific Railroad was constructed through the area in 1907 by McIntosh Brothers of Milwaukee, Wisconsin. The railroad grade was abandoned in 1980. It is eligible for the NRHP under Criterion A.

The Goffena Ditch System is an amalgamation of several ditch systems located in the area. Between 1935 and 1948, Louis Goffena consolidated at least three already existing ditch systems

into one unit. Unused portions of the older ditches were abandoned and allowed to deteriorate. The Goffena Ditch System is eligible for the NHRP under Criterion A.

Build about 1914, the Handel Grain Elevator consists of a grain elevator with additions and other buildings once owned by the Handel Brothers and served by the Chicago, Milwaukee, St. Paul & Pacific Railroad. It is eligible for the NRHP under Criteria A and C for its association with the agricultural development of the Musselshell River valley and its high degree of integrity.

The Four Horses petroglyph site consists of four horses (3 with riders), a shield-bearing warrior, a V-neck figure and a buffalo. The petroglyph consists of thin-lined etchings, yellow and red paint, and a combination of etching and paint. The site is eligible for the NRHP under Criteria A, C, and D.

The Twenty One Guns site is situated on a south-facing sandstone outcrop overlooking the Musselshell River. It consists of 24 panels and "range from anthropomorphic and geometric thick-lined pictographs to very thin line protohistoric petroglyphs of horses, square-bodied anthropomorphs, shield-bearing figures and a panel of at least 21 rifles." The site is eligible for the NRHP under Criteria A, C, and D.

Melstone-East & West
During a cultural resource study that was conducted in 1994, a total of 16 previously undocumented cultural resource sites were encountered. Of these, four are prehistoric archaeological sites, one is an archaeological site that contains both prehistoric and historic artifacts, and eleven properties consist of individual buildings or building clusters. In addition, eight isolated artifacts were located. Fourteen of the sites were deemed ineligible.

Cultural material associated with the Lithic Scatter (24ML716) is found on both the north and south sides of Highway 12 at Milepost 196.5. North of the highway, evidence of the site is found only west of an unnamed, north-south oriented drainage, while south of the highway the site is limited to the east side of the drainage. At the point where the highway truncates the drainage a bridge allows water to flow under the highway and on to the Musselshell River, which is located less than a quarter of a mile to the southeast. With the exception of this drainage cut, the site is relatively flat, though somewhat rolling to the north.

Site 24ML720 is located on the north side of Highway 12 between mileposts 202.4 and 202.5. At this location a barbed wire right-of-way fence parallels Highway 12. Other historic age improvements located in the vicinity include an irrigation canal associated with the Delphia-Melstone Ditch system and a dirt ranch access road. The access road exits the north side of the highway, proceeds northward through a gate in the fence and makes a 90 degree turn to the east where it parallels Highway 12. Within the current project area, one cluster of cultural material is located on the west edge of the ridge toeslope. This concentration of material is about 50 m (164.0 ft) long by 10-20 m (32.8-65.6 ft) in width, and contains only a sparse scatter of grey porcellanite flakes. Judging from the shape of the surface distribution, the construction of the highway has eliminated evidence of cultural activity south of the right-of-way fence.

Impacts

The No-Build Alternative would have no impact on historic and cultural resources within the study area of the two projects. Table 18 summarizes the impacts from both projects Build Alternatives.

Table 18
Properties Identified as NHRP Eligible

Site #	Name	Description	NRHP Eligible	Project Effect
		Musselshell - East & West		
24ML369	Chicago Milwaukee, St. Paul & Pacific Railroad	1907 - Historic railroad bed with only timber bridges and sub-grade of railroad still in place	Yes – However, this segment is non-contributing	Included under existing Programmatic Agreement
24ML381	Handel Grain Elevator	1914 – Grain elevator with additions and other buildings once owned by the Handel Brothers and served by the Chicago, Milwaukee, St. Paul & Pacific Railroad.	Yes	No Effect
24ML397	Four Horses (Rock Art)	Prehistoric/protohistoric. This rock art site is a combination of painted and of thin line etched figures. The glyphs include four horses, three with riders, a shield bearer, a v-necked figure and a buffalo.	Yes	No Effect
24ML398	Twenty-one Guns (Rock Art)	Late prehistoric and protohistoric. This rock art site contains pictographs and petroglyphs of many styles. There are 24 panels and the motifs range from anthropomorphic and geometric thick-lined glyphs to thin lined glyphs of horses, rifles, square-bodied and shield-bearing anthropomorphs.	Yes	No Adverse Effect
		Melstone - East & West		
24ML716	Lithic Scatter	Cultural material comprised of four flakes and and 2 bifacially flaked tools.	Undetermined	N/A
24ML720	Lithic Procurement/Workshop	Cultural Material - debitage 150 – 200 flakes and two bifacially flaked tools. Most is light gray porcellanite, others are red, chert/chalcedony and basalt.	No	N/A

Source: Montana Department of Transportation and Historical Research Associates, Inc. 1994.

Musselshell – East & West
Any effects to the Chicago, Milwaukee, St. Paul & Pacific Railroad (24ML369) are covered under an existing Programmatic Agreement (signed July, 1990).

Since the Goffena Ditch System (24ML373) is still in operation, impacts to this site are included under the terms of the existing Irrigation Ditch Programmatic Agreement (signed March, 1991). A site form describing the ditch is on file at MDT and the Montana SHPO.

Photo 8: Rock art sites located along the Musselshell project.

The existing centerline is located 68.9 m (226 ft) from the Handel Grain Elevator (24ML381). The proposed project would shift the centerline 14.0 m (46 ft) closer to the site at 54.9 m (180 ft). The proposed pavement edge would be 50.6 m (166 ft) from the old grain elevator. The proposed fill slope (which would also delineate the proposed right-of-way boundary) would be located 32.9 m (131 ft) from the site. There would be no encroachment on the Handel Grain Elevator site as a result of the proposed Musselshell-East & West project.

The proposed project would have **No Effect** to the NRHP-eligible Handel Grain Elevator (24ML381). The characteristics that make the site eligible for the National Register would be perpetuated and there would be no effect to the setting of the property.

At the Four Horses petroglyph site (24ML397) the existing centerline would be perpetuated and the road widened 7.3 m (24 ft) to an 8.5 m (28 ft) paved driving surface. The petroglyph site is located 122.8 m (403 ft) from the existing/proposed centerline in the sandstone bluffs above the road. With the widening, the pavement edge would be located 119.8 m (393 ft) form the site and the construction limits 109.7 m (360 ft) from the petroglyphs. The Four Horses site is, therefore, located outside the area of potential effect for this project.

There would be **No Effect** to the Four Horses site (24ML397). There would be no substantial change in the setting of the property and because of the site's location in the bluffs above the road, there is not likely to be any effect to it because of the construction activities. The site would remain an important American Indian petroglyph retaining all the qualities that make it eligible for listing on the National Register.

The existing centerline would be perpetuated in the vicinity of the Twenty One Guns site (24ML398). To accommodate the widening of the roadway and the improvement of the substandard sight distances, however, a cut would be made in the sandstone bluffs in which the site is located. The existing/proposed centerline is located 46.9 m (154 ft) from the site. The edge of the road cut would be 25 m (82 ft) from the site. The proposed pavement edge would be 45.1 m (148 ft) from the site. The site would remain outside the MDT's proposed right-of-way limits.

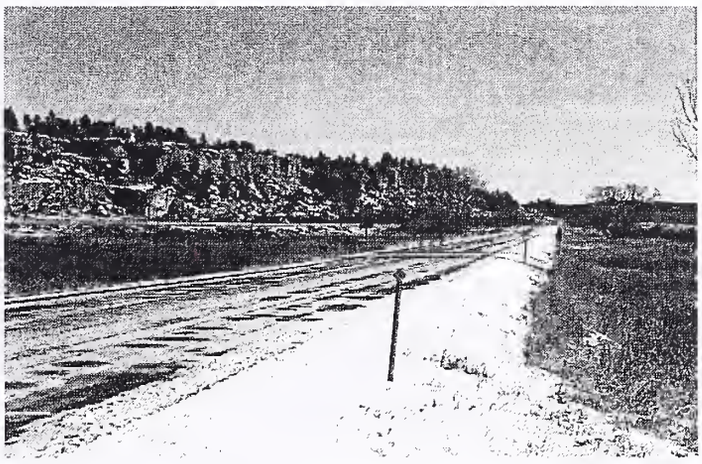


Photo 9: Additional view of rock art sites along the Musselshell project.

There would be **No Adverse Effect** to the NRHP-eligible Twenty One Guns site (24ML398). Because of the cultural significance of the site, however, the construction limits were modified to minimize the size of the cut and any effect to it as a result of the proposed project. A special provision would also be included in the contract to monitor the site as excavation proceeds on the project in the vicinity of the site. Based on the design modifications, the site would be preserved with a fairly substantial barrier remaining between the rock art site and the roadway. The site would remain outside the proposed right-of-way boundaries.

Melstone-East & West

In the absence of subsurface testing, a recommendation regarding the significance of the Lithic Scatter (24ML716) was not made. Although the surface indications of the material at this site are limited in number, two of the six artifacts observed may be classified as bifaces.

It is recommended that the Lithic Procurement (24ML720) be considered eligible for listing in the NHRP. Although the distribution of artifacts at this site appears to be limited to surface deposits, the site may have the potential to yield information regarding the prehistoric past. A temporally diagnostic projectile point bracketed at least one occupation of the site to the period between 1500-1000 BC. A relatively wide rage of tool types is present, including unifacial tools with utilized edges. More intensive investigation of the surface artifact distribution, coupled with use-wear analysis may contribute information regarding the lithic reduction sequences and the range of activities carried out at this location. It appears that the surface distribution of artifacts at site 24ML720 has already been disturbed south of the north right-of-way fence.

Mitigation

Through sensitive design and coordination with SHPO, potential impacts to these sites were avoided. Modifications to the proposed Musselshell project alignment have been incorporated into conceptual plans (as described previously).

SHPO suggests monitoring the Twenty-One Guns site during construction as a means of identifying any unanticipated effects. Monitoring sites should be set up at several points across the face of the panels in relation to reference points, so that metric observations can be made before, during, and after construction as an aid in recognizing unintended impacts. Monitoring activity details would be covered by a special provision to the construction plans/contract.

Minimal amounts of new right-of-way are required in the areas of site 24ML716 (Lithic Scatter) and site 24ML720 (Lithic Procurement) and additional testing should be conducted to determine horizontal and vertical distribution of material, prior to construction.

8. Section 4(f) of the U.S. Department of Transportation Act

Both projects are subject to the provisions in *Section 4(f)* of the U.S. Department of Transportation Act (**49 U.S.C. 303**, as amended) under 23 CFR 771.135. Those provisions apply to Federally funded transportation projects which will affect sites either on or eligible for the NRHP, and the use of publicly owned parks, recreation areas, and wildlife/waterfowl refuges or multiple use management areas.

Impacts

The No-Build Alternative would not have any impacts under the provisions of *Section 4(f)*.

The abandoned railroad grade (24ML369) is not regarded as a *Section 4(f)* site within MDT's Billings District. That decision was made under the provisions of 23 CFR 771.135(f), and a copy of MDT's letter with SHPO's concurrence is in Appendix A.

It has been determined that MDT's Preferred Alternative will have **no adverse affect** to the Twenty One Guns Rock Art site (24ML398). This 4(f) impact is described in the Nationwide Section 4(f) form in Appendix A.

Mitigation

Both of these proposed projects require Section 4(f) evaluations for their impacts on the irrigation ditch system(24ML373) and the Twenty One Guns Rock Art site(24ML398). The Nationwide Programmatic Section 4(f) forms for the historic sites are included in Appendix B.

9. Noise

Both of the proposed projects involve reconstruction of the roadway with minor shifts in alignment. The number of through traffic lanes would not increase. Due to the nature of these projects, low traffic volume and rural location, a detailed noise analysis is not required. Per review of applicable regulations, these proposed projects comply with (23 CFR 772.5(h) & 772.7(a)). It is also in compliance with MDT's noise policy, as amended. Traffic noise level increases would not be substantial with the construction of these projects.

Mitigation

No mitigation is required.

10. Hazardous Waste

Under the EPA's rules, "Hazardous Waste(s)" are defined as "...a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may:

(a) cause or contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or
(b) pose substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed-of, or otherwise managed.

EPA defines solid waste as "...any garbage, refuge, sludge...and other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities..." There are no Superfund sites or petroleum release sites under either the *Federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA;* **42 U.S.C. 9601**, *et seq.*) and Montana's *Comprehensive Environmental Cleanup and Responsibility Act (CECRA*; **75-10-701 M.C.A.**, *et seq.*) along these proposed projects in the corridor.

Examples of potential hazardous waste sites or petroleum hydrocarbon contaminated sites along the proposed projects in the corridor include: coal mines, petroleum extraction/distribution facilities, gas stations/fueling sites, electric distribution substations, and the crop spraying facility. An investigation for abandoned underground storage tanks in Melstone was performed in October 1999, by Harding Lawson Associates. Both an EM3 1-D terrain conductivity meter and Ground Penetrating Radar were used along both the north and south sides of the existing alignment. In general, the north side examination extended from the electric distribution substation at RP 204.5± east of 2nd Street West and south of 2nd Avenue to the culvert near RP 204.8± on the southwest side of 5th Avenue's intersection. The approximate width of the investigated area was 12 m to 15 m (40±m to 50±m) as measured from the existing highway.

Impacts

An MDT consultant identified one likely hazardous waste site east of Melstone's Main Street and northwest of RP 204.6± within a fenced area underneath some metal playground equipment. It was determined from the investigation of this area that an underground storage tank may be buried deeper than 0.6±m (2.0±ft) below the ground surface.

MDT has concluded that with the data currently available, the No-Build Alternative and Build Alternatives for these projects would not impact any known hazardous materials including petroleum release sites or Superfund sites.

Mitigation

If minor contamination is discovered during construction, it would be handled through the *Standard Specifications for Road and Bridge Construction, 1995 Edition*. Additional survey work may be required to confirm the location of the UST in Melstone.

11. Visual

The existing alignment travels mainly through cultivated and grazed farmlands, and the small town of Melstone. The area is rural in character and long distance views due to the lack of buildings and the presence of agricultural lands are common along this roadway. The western portion of the proposed Musselshell-East & West project between its beginning and the sandstone bluff is within cottonwood bottomlands along the Musselshell Valley. Views are therefore somewhat restricted by both the vegetative cover (particularly along the river and its old oxbow channels) and sandstone cliffs to the north. Vegetation becomes scattered piney woodlands over that bluff, which thin out to little or virtually none of substantially obstructive types proceeding northeast on the proposed Melstone-East & West project.

Impacts

The No-Build Alternative would have no changes to the present appearance of the area.

MDT's proposed Preferred Alternative, including its shifts in horizontal alignments does not deviate substantially enough from the existing route to be considered an aesthetic impact. Only the proposed alignment over the sandstone bluff will be beyond the current highway's right-of-way, and consequently will have the most visible change. Overall, the impression will be one of a somewhat wider two lane route with flatter horizontal curves and reduced vertical changes.

Mitigation

Impacts to the views along these proposed projects in the corridor are considered negligible, and therefore mitigation is not required.

12. Air Quality

The proposed project(s) are located in an unclassified/attainment area of Montana for air quality under 40 CFR 81.327, as amended. As such, the proposed project is not covered under the EPA's "**Final Rule**" of September 15, 1997 on Air Quality Conformity. Therefore, the No-Build Alternative and the Build Alternatives would all comply with *Section 176(c)* of the *Clean Air Act* (**42 U.S.C. 7521** (a)), as amended.

Mitigation

No mitigation is required.

13. Construction

Construction activities from these proposed projects will cause temporary inconveniences to the traveling public. These will occasionally result in longer travel times, detours, temporary complete closure, and noise and dust due to the heavy equipment and machinery. These disruptions will occur intermittently for the one to two year construction periods.

This proposed project's contractor will be subject to all state and local laws to minimize construction noise by having mufflers on all equipment. Dust control will also be required by using either water, or another approved dust suppressant. All advance warning and detour signing will be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). Therefore, construction impacts from this proposed projects in the corridor Preferred Alternative will be minimized.

D. Cumulative Impacts

1. Utilities

Utilities found along US 12 for the proposed projects include power lines, telephone lines, fiber optic cables, buried water lines, a buried sanitary sewer pipe line, buried television cables, and a buried liquid petroleum pipe line. Approximate locations of these facilities are indicated in Table 19.

Table 19
Utility Locations

Utility Feature	Location
Musselshell – East & West	
Five power lines	From "RP"(MP) 189.9± to "RP"(MP) 193.9±
Two telephone lines	"RP"(MP) 190.6± & "RP"(MP) 191.9±
Melstone – East & West	
Eight telephone lines	From "RP"(MP) 197.6± to "RP"(MP) 205.3±
Fiber optic cable	"RP"(MP) 198.9±
Seven power lines	From "RP"(MP) 196.8± to "RP"(MP) 204.7±
Five water lines	From "RP"(MP) 200.4± to "RP"(MP) 204.7±
Sanitary sewer crossing	"RP"(MP) 204.7±
Television line crossing	"RP"(MP) 204.8±
Liquid petroleum line crossing	"RP"(MP) 206.0±

Source MDT 2001.

Impacts

There would be no impact to utilities under the No-Build condition.

The utilities identified in Table 20 would require relocations or modified crossings under the Build Alternatives for the proposed projects.

Mitigation

Utility relocations will be coordinated with utility owners, and done prior to this proposed project(s) construction. Notification of service interruptions due to these relocations will be the responsibility of the utility line owners. Such disruptions are normally minor and are usually limited to the customers on the affected lines.

2. Other Pending/Ongoing Actions

The following projects were identified as being underway or completed within the vicinity of the proposed projects:

- Roundup East [F 14-5(9) 170, CN 1293]
- 19km East of Roundup –East project [P 14-5(17) 182, CN A302]
- Rosebud County Line East project [P14-6(8) 207, CN 4060]

To the west of the proposed projects, Roundup East has been completed, and the19km East of Roundup East is under construction. The Rosebud County Line East project (which is adjacent to the east end of the Melstone project) is still in the planning phase. A Categorical Exclusion has been recently completed for this project.

These projects adjoin the eastern and western termini of the proposed projects. Temporary construction impacts, if any, will depend on construction schedules of all three proposed projects, and will be coordinated by MDT. The Musselshell-East & West project and the Melstone-East & West project are not anticipated to have cumulative adverse environmental impacts from or on the projects mentioned above, but rather are consistent with these other improvement projects in the region.

E. Permits Required

This proposed project's Build alternative will require the following permits to be obtained prior to any relevant disturbances.

- The proposed projects would be in compliance with both the Water Quality provisions of **75-5-308 M.C.A.** for *Section 3 (a)* authorizations, and Stream Protection under **87-5-501** through **509 M.C.A.**, inclusive. A ***124 SPA*** Stream Protection Permit has been requested from the MFWP. An on-site review of these proposed projects, with representatives from MFWP and MDT, will be scheduled if necessary. All comments, suggestions, and/or conditions resulting from review of existing data and/or on-site inspections will be documented, included in the proposed projects' files, and taken into account in the final design specifications.
- A FEMA floodplain development authorization would also be required from Musselshell County's floodplain administrator.
- The proposed projects would also require the following under the *Clean Water Act* (**33 U.S.C. 1251-1376**, as amended):

  A *Section 402*/Montana Pollutant Discharge Elimination System (MPDES) authorization from the MDEQ's Permitting and Compliance Division.

  A *Section 404* permit from the CoE, which will determine if the proposed projects qualify for a "Nationwide" permit under the provisions of 33 CFR 330.

III. COMMENTS AND COORDINATION

The procedures for conducting a draft Environmental Assessment emphasize cooperative consultation among agencies and the early and continued involvement of people who may be either interested in or affected by the projects. This chapter documents the specific elements of the public and agency involvement program.

A. Agencies with Jurisdiction and/or Permitting Authority

The following agencies were contacted and/or provided feedback during the environmental documentation process:

Advisory Council on Historic Preservation
Montana Department of Environmental Quality (MPDES authorization)
Montana Department of Natural Resources and Conservation
Montana Fish, Wildlife and Parks (*124SPA* permit)
State Historic Preservation Office (Concur with "Determinations of Effect")
U.S. Army Corps of Engineers (*Clean Water Act - Section 404* permit)
U.S. Environmental Protection Agency
USDA - Natural Resources Conservation Service
U.S. Fish & Wildlife Service

B. Cooperating Agencies

Letters were mailed to several agencies asking their participation in the process as a "cooperating agency." Cooperating agencies are those that are active in the review process of the Environmental Assessment. These agencies help to determine and review the issues that need to be addressed during the environmental documentation process and how to mitigate impacts to environmental resources that result from the projects.

Selected agencies were chosen from the list above to receive the cooperating agency invitation letters based on the significant issues of the projects' areas. It was determined by MDT staff that no BLM-owned property was in the study area. . The U.S. Fish & Wildlife Service, the U.S. EPA and the U.S. Corps of Engineers were not included because it was determined no federally managed wildlife or water resources are located in the area. The following are the agencies that were asked to be cooperating agencies:

- Town of Melstone
- Montana Dept. of Natural Resources and Conservation
- Montana Dept. of Environmental Quality
- Montana Fish, Wildlife & Parks
- USDA Natural Resources Conservation Service

To date, correspondence has been received from two agencies. Copies of related correspondence are included in Appendix A.

C. Public Involvement

Musselshell – East & West

The Musselshell – East & West proposed project has been a topic of discussion for several years. On February 8, 1989, a public meeting was held related to this project. The main comments voiced at this meeting include the following:

- Concerns were raised surrounding the southern realignment proposed at Musselshell Hill ("RP"(MP) 193.0± – 195.0±), referred to as Alternative B in this report, due to impacts to wetlands, potential soft soils, and the area's history of flooding.

- Comments regarding project construction and existing conditions were noted. One comment requested data on the future locations of development and/or irrigation systems. Attendees expressed interest in being able to view plans as part of the environmental documentation process.

- Landowners raised their concerns related to property acquisition for project right-of-way. MDT staff indicated that project right-of-way would be purchased outright, and that all right-of-way appraisals would take into consideration any property improvements in place at the time of acquisition.

- General support for the project was voiced and the point was raised that any life saved by improving the roadway would make the project worthwhile.

Melstone – East & West

A public meeting for the Melstone – East & West project was held in Melstone on April 18, 2000 at 6:30 pm. Key issues voiced by the attendees included:

- Improving drainage along the highway as part of the proposed project

- Maintaining irrigation during and after construction, as irrigation is essential for maintaining grazing activities.

- Maintaining access for traffic and businesses during construction.

- Minimizing property acquisition when possible.

D. Distribution List

Federal Agencies

US ARMY-Corps of Engineers
Omaha District Planning Division
215 North 17th Street
Omaha, NE 68102-4978
Dwight Olsen, CENWO-ED-HC
Candice Thomas, Environmental Analysis

DEPARTMENT OF ARMY-CORPS OF ENGINEERS
Helena Regulatory Office
301 South Park, Drawer 10014
Helena, MT 59626-0014
Allan Steinle, Montana Program Manager

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service
109 Railroad Avenue East
Roundup, MT 59072
John Rouane, District Resource Conservationist

U.S. DEPARTMENT OF TRANSPORTATION,
FEDERAL Highway Administration
2880 Skyway Drive
Helena, MT 59602
Dale W. Paulson, Program Development Engineer
Gene Kaufman, Operations Engineer

U.S. FISH & WILDLIFE SERVICE
Montana Field Office
100 North Park Avenue, Suite 320
Helena, MT 59601
R. Mark Wilson, Field Supervisor

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region VIII, Montana Office
Federal Building, 301 South Park, Drawer 10096
Helena, MT 59626-0096
John F. Wardell, Director

State Agencies

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Lee Metcalf Building
1520 East Sixth Ave.
P.O. Box 200901
Helena, MT 59620-0901
Jan Sensibaugh, Director
Tom Ellerhoff, Administration Officer

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
Southern Land Office
Airport Park, Building IP 9
Billings, MT 59105
Attn: Don Kendall, Area Manager

MONTANA ENVIRONMENTAL QUALITY COUNCIL
Office of the Director
Capitol Post Office
P.O. Box 215
Helena, MT 59620

MONTANA FISH, WILDLIFE & PARKS
2300 Lake Elmo Drive
Billings, MT 59105
Harvey Nyberg, Regional Supervisor
Ken Soderberg, Resource Program Manager

State Agencies (Cont.)

MONTANA HIGHWAY COMMISSION
2037 Ridgeview Drive
Billings, MT 59105-3636
Meredith Reiter

MONTANA STATE LIBRARY
P.O. Box 201800
Helena, MT 59620-1800
Attn: Roberta Gebhardt
Collections Management Librarian

Local Agencies

TOWN OF MELSTONE
P.O. Box 237
Melstone, MT 59054-0001
Mayor James C. Pinkerton

MUSSELSHELL COUNTY
PLANNING OFFICE
506 Main Street
Roundup, MT 59072
Kirby Danielson

Appendix A
Agency Coordination Letters

BRW
A DAMES & MOORE GROUP COMPANY

December 21, 1999

Seventeenth Street Plaza
1225 Seventeenth Street
Suite 200
Denver, Colorado 80202
303 293 8080 Tel
303 293 8585 Fax

Mr. John Rouane, District Conservationist
U.S.D.A. – NATURAL RESOURCES CONSERVATION SERVICE
109 Railroad Avenue East
Roundup, MT 59072

Subject: STPP14-5(18) 189 and 14-5(12) 196 (US Highway 12)
Musselshell East & West and Melstone East & West
Control Numbers 1302 and 2152

This is to request the NATURAL RESOURCES CONSERVATION SERVICE (**NRCS**) to be a Cooperating Agency on the above referenced projects in accordance with the U.S. Department of Transportation Federal Highway Administration's (FHWA) regulations (23 CFR 771.111(d)).

MDT will be coordinating the identification of Important Farmlands and completion of the USDA **#AD-1006** Farmland Conversion Impact Rating form with **NRCS** on these projects. Any other pertinent comments the **NRCS** may have at this time would also be appreciated.

The projects, led by the Montana Department of Transportation (MDT), are located in central Montana in Musselshell County and will involve the reconstruction and the realignment of US Highway 12 to meet current MDT design standards. Presently, there are several substandard horizontal and vertical curves along this highway. The two projects connect at reference (mile) post 196. One project, Musselshell – East & West, begins at reference post 189.3 and ends at reference post 196 (see Figure 1-A). The other project, Melstone – East & West, begins at reference post 196 and ends approximately at reference post 207.2 as shown on Figure 1-B. The total length of the two projects is 28.4 km (17.7 mi) with the westerly terminus west of the town of Musselshell and the easterly terminus east of the town of Melstone at the Musselshell River bridge.

A written response to this Cooperating Agency request is needed for the environmental documentation for these projects. A response on these matters may result, if necessary, in further inter-agency coordination to avoid or minimize potential project impacts. As a Cooperating Agency, NRCS will receive periodic updates on the study progress, as well as requests for your participation in additional coordination meetings. MDT will also provide a copy of the rough draft environmental document the projects for your review.

Enclosed for your review are copies of the Scope of Work for Musselshell – East and West and the Field Review Report for Melstone – East and West. If you have any questions, please contact MDT's Environmental Services at (406) 444-7227 or myself at 1-800-449-2302 ext. 572. Thank you for your assistance.

Sincerely,

Kristin Kenyon

Kristin Kenyon, AICP
Project Manager for BRW, Inc.

Enclosures

cc: Bruce Barrett, District Administrator – MDT District (No. 5)
Carl S. Peil, P.E. - MDT Preconstruction Engineer
Thomas E. Martin, P.E. - MDT Right-of-way Bureau Chief
Timothy W. Reardon, Chief Counsel – MDT Legal Services
Joel M. Marshik, P.E., Manager – MDT Environmental Services
Barry Brosten, Acting Engineering Bureau Chief – MDT Environmental Services
Dale W. Paulson, Program Development Engineer - FHWA
file

United States Department of the Interior

FISH AND WILDLIFE SERVICE
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA MT 59601
PHONE (406) 449-5225, FAX (406) 449-5339

January 24, 2000

RECEIVED
JAN 2 8 2000
By

M.44 MDOT (I)

Jeffrey W. Olson
BRW
Thresher Square
700 Third Street South
Minneapolis, Minnesota 55415

Subject: US Hwy. 12 widening; Musselshell to Melstone

Dear Mr. Olson:

This letter is in response to your December 21, 1999 correspondence regarding the subject proposed US Highway 12 reconstruction project in Musselshell County, Montana. Your letter requested information the Fish and Wildlife Service (Service) may have pertaining to threatened and endangered (T/E) species that may occur in the proposed project corridor. The Service received your letter on December 27, 1999. These comments have been prepared under the authority of, and in accordance with, the provisions of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et.seq.) and the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.).

In accordance with section 7(c) of the Act, the Service has determined that the following threatened, endangered and proposed species may be present in the project corridor:

Listed Species	Expected Occurrence
bald eagle (*Haliaeetus leucocephalus*); threatened	spring or fall migrant; winter resident; nesting
black-footed ferret (*Mustela nigripes*); endangered	prairie dog complexes
Proposed Species	
mountain plover (*Charadrius montanus*); proposed as threatened	potential occurrence in shortgrass prairie habitat

Section 7(c) of the Act requires that Federal agencies proposing major construction activities complete a biological assessment to determine the effects of the proposed actions on listed and proposed species and use the biological assessment to determine whether formal consultation is required. A major construction activity is defined as "a construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act (NEPA)" (50 CFR Part 402). If a biological assessment is not required (i.e. all other actions), the Federal agency is still required to review their proposed activities to determine whether listed species may be affected. If such a determination is made, formal consultation with the Service is required.

For those actions wherein a biological assessment is required, the assessment should be completed within 180 days of initiation. This time frame can be extended by mutual agreement between the Federal agency or its designated non-Federal representative and the Service. If an assessment is not initiated within 90 days, this list of threatened and endangered species should be verified with the Service prior to initiation of the assessment. The biological assessment may be undertaken as part of the Federal agency's compliance of section 102 of NEPA and incorporated into the NEPA documents. We recommend that biological assessments include the following:

1. A description of the project.
2. A description of the specific area that may be affected by the action.
3. The current status, habitat use, and behavior of T/E species in the project area.
4. Discussion of the methods used to determine the information in Item 3.
5. An analysis of the affects of the action on listed species and proposed species and their habitats, including an analysis of any cumulative effects.
6. Coordination/mitigation measures that will reduce/eliminate adverse impacts to T/E species.
7. The expected status of T/E species in the future (short and long term) during and after project completion.
8. A determination of "is likely to adversely affect" or "is not likely to adversely affect" for listed species.
9. A determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species.
10. Citation of literature and personal contacts used in developing the assessment.

If it is determined that a proposed program or project "is likely to adversely affect" any listed species, formal consultation should be initiated with this office. If it is concluded that the project "is not likely to adversely affect" listed species, the Service should be asked to review the assessment and concur with the determination of no adverse effect.

Pursuant to section 7(a) (4) of the Act, if it is determined that any proposed species may be jeopardized, the Federal agency should initiate a conference with the Service to discuss conservation measures for those species. For more information regarding species of concern occurring in the project areas, including proposed and candidate species, please contact the Montana Natural Heritage Program, 1515 East 6th Ave., Helena, 59601, (406) 444-3009.

A Federal agency may designate a non-Federal representative to conduct informal consultation or prepare biological assessments. However, the ultimate responsibility for Section 7 compliance remains with the Federal agency and written notice should be provided to the Service upon such a designation. We recommend that Federal agencies provide their non-Federal representatives with proper guidance and oversight during preparation of biological assessments and evaluation of potential impacts to listed species.

Section 7(d) of the Act requires that the Federal agency and permit/applicant shall not make any irreversible or irretrievable commitment of resources which would preclude the formulation of reasonable and prudent alternatives until consultation on listed species is completed.

Any power lines in the vicinity, if not properly constructed, could pose electrocution hazards for bald eagles. To conserve this species, and other large raptors protected by Federal law, we urge that any power lines that need to be modified or reconstructed as a result of this project be raptor-proofed following the criteria and techniques outlined in the publication, "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996." A copy may be obtained from: Jim

Fitzpatrick, Treasurer, Carpenter Nature Center, 12805 St. Croix Trail South, Hastings, MN 55033. The use of such techniques would likely be most beneficial adjacent to expected raptor foraging areas (i.e. stream crossings or wetlands that support populations of waterfowl).

We do not possess site specific information on wetlands that may occur in the project corridor. However, the project map indicates that several creeks and rivers will be crossed. It is likely that these areas, and others, may contain wetlands that may be impacted by this project. If so, Corps of Engineers (Corps) Section 404 permits may eventually be required. In that event, depending on permit type and other factors, the Service may be required to review permit applications and will recommend any protection or mitigation measures to the Corps as may appear reasonable and prudent based on the information available at that time.

If you have questions regarding this letter, please contact Scott Jackson, of my staff, at the address above or by phone at (406) 449-5225, ext. 201.

Sincerely,

Kemper M. McMaster
Field Supervisor
Montana Field Office

cc: Dave Hill, MDOT, Environmental Services, 2701 Prospect Ave., Helena 59620-1001
FWS-ES; Billings Suboffice

Copy: Bruce Barrett
Carl Peil
Terry Yarger
Gordon Stockstad
Dave Hill
Darryl James - BRW

United States Department of the Interior
FISH AND WILDLIFE SERVICE
MONTANA FIELD OFFICE
100 N. PARK, SUITE 320
HELENA, MONTANA 59601
PHONE (406) 449-5225, FAX (406) 449-5339

MASTER FILE COPY

M.44 MDT (I)

February 26, 2001

Dave Hill
Environmental Services
Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena, Montana 59620-1001

Musselshell-E&W. CN 1302 STPP 14-5(10)168
Melstone-E&W. CN 2152 STPP 14-5(12)196

RECEIVED
MAR 0 1 2001
ENVIRONMENTAL

Dear Mr. Hill:

This is in response to your recently re-transmitted letter originally dated September 25, 2000, in which you requested Fish and Wildlife Service (Service) concurrence with the Montana Department of Transportation's determination that the Musselshell - East & West (STPP 14-5(18)189; Control No. 1302) and Melstone East & West (STPP 14-5(12)196; Control No. 2152) highway reconstruction projects will not be likely to adversely affect threatened or endangered species. The project proposals involve approximately 28.4 km of US Highway 12 along the Musselshell River in Musselshell County, Montana.

The Biological Resources Report (BRR) for these projects concluded that the activities proposed to occur would not likely adversely affect the threatened bald eagle (*Haliaeetus leucocephalus*), and would have no effect on the endangered black-footed ferret (*Mustela nigripes*) or whooping crane (*Grus americana*), or on the proposed mountain plover (*Charadrius montanus*). Based upon information you provided in the BRR, the Service concurs that these species will not be adversely affected by these projects and that formal consultation is not required.

The Service notes the BRR's discussion of cliff swallow (*Hirundo pyrrhonota*) nests attached to the undersides of most of the 15 timber bridges that are to be replaced with pipes or box culverts as part of these highway reconstruction projects. To comply with the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703 et seq), and minimize the taking of swallows nesting under these bridges, the Service recommends that bridge removals be conducted outside swallow nesting season (May 15 - August 31) to the maximum extent practicable.

Relative to the probable occurrence of the candidate species sturgeon chubs (*Macrhybopsis gelida*) and sicklefin chubs (*Macrhybopsis meeki*) in the Musselshell River, the Service recommends that the pipes and concrete box culverts proposed as replacements for the numerous tributary bridges on these projects be designed in a manner that facilitates the passage of these species during the times of the year when these intermittent drainages contain flowing water.

This concludes informal consultation pursuant to regulations 50 CFR §402.13 implementing the Endangered Species Act of 1973, as amended (Act). This project should be re-analyzed if new information reveals effects of the action that may affect listed species or if the project is modified in a manner that causes an effect not considered in this consultation.

The Service appreciates your efforts to consider and conserve fish and wildlife resources, including threatened and endangered species. If you have questions regarding this letter or your responsibilities under the Act, please contact Mr. Scott Jackson, of my staff, at (406)449-5225, ext. 201.

Sincerely,

R. Mark Wilson

R. Mark Wilson
Field Supervisor

Copy to: FWS-ES, Billings Suboffice

Montana Fish, Wildlife & Parks

1/19/00

D&M Group
BRW
17th Street Plaza
1225 17th. St.
Suite 200
Denver, Colorado 80202

Kristin Kenyon, AICP
Project Manager

This letter is in reference to your request for comments on the Musselshell East and West and Melstone East and West projects.

I have two areas of concern with these projects, both of which are related to removal and replacement of the bridge crossing the Musselshell river.

Your enclosed documents indicate the removal of the timber bridge currently in place and replacement with a box culvert. I am concerned that the box culvert will not provide adequate fish passage during extremes in the annual flow calendar. A box culvert of a size necessary to replace the current bridge will have impacts to the fishery. I feel the bridge should be replaced with another bridge.

My second concern is related to maintaining traditional public access at the east end of the bridge site. Local anglers utilize this area as an access site which provides opportunity for recreational angling. Please consider this use of the public resource in your planning.

I appreciate the opportunity to comment on this preliminary plan.

Sincerely,

Brad Schmitz
FWP Fisheries Manager, Region 7, Miles City, MT

(406) 232-0900

Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

David A. Galt, Director
Judy Martz, Governor

January 11, 2001

Stan Wilmoth
State Historic Preservation Office
1410 8th Avenue
P.O. Box 201202
Helena, MT 59620-1202

C.R. FILE COPY

Subject: F-STPP 14-5(10)182
Musselshell – East & West
Control No. 1302

Recently, you and Josef Warhank expressed concerns about possible seismic impacts to the Twenty One Guns rock art site (24ML398) caused by construction activities in the vicinity of the property. Because of the historic significance of the property, the MDT has taken measures to avoid and minimize, as much as possible, impacts to the site while maintaining current design standards for U.S. Highway 12 through this area.

The Twenty One Guns rock art site (24ML398) is currently located 154± feet from the existing U.S. Highway 12 centerline near the community of Musselshell. The original plans proposed for this project specified a large rock cut in the immediate vicinity of the site. The initial plan stated that the edge of the cut would come within 5± feet of the site. This, we believed, would cause an adverse effect to the site. Based on this, we endeavored to modify the plans in the vicinity of the Twenty One Guns site, the result being a significant reduction in the size of the cut. The proposed cut would now be about 82± feet from the Twenty One Guns site. A cross-section of the plans also show that the cut will not significantly change the existing hillside above the roadway and the rock art site will remain located on a shelf above the hillside. The rock will be removed by ripping the rock out – there would be no drilling or blasting in the vicinity of the site. We feel these modifications to the original plans would significantly reduce the possibility of damaging this historically significant property.

Despite this, we are also proposing to have someone monitor the site as construction activities progress in the vicinity of the site. This person would be responsible for observing the site and if any damage occurs, stopping construction activities there until it can be investigated by myself, Steve Platt and a representative from your office. A plan would then be developed to mitigate the effects so that construction can be resumed as soon as possible. This would be included as a Special Provision to the contract. If you feel it necessary that we also develop a Memorandum of Agreement for this project, please let me know.

In conclusion, we feel that the MDT has taken special pains to avoid having an adverse effect to the Twenty One Guns site and maintain that the **No Adverse Effect** determination is appropriate. We would be interested in obtaining your comments on this matter as soon as possible.

If you have any questions, please contact me at 444-6258.

Jon Axline

Jon Axline, Historian
Environmental Services

cc: Bruce Barrett, Billings District Administrator
Carl Peil, P.E., Preconstruction Bureau
Gordon Stockstad, Resources Bureau

Montana Historical Society
Historic Preservation Office
1410 8th Avenue • PO Box 201202 • Helena, MT 59620-1202 • (406) 444-7715 • FAX (406) 444-6575

Wednesday, January 17, 2001

Jon Axline
MDT
POB 201001
Helena MT 59620-1001

RECEIVED
JAN 19 2001
ENVIRONMENTAL

Re: No Adverse Effect Finding for 24ML398

F-STPP 14-5(10) 182
Musselshell - East & West
Control No. 1302

Jon:

We **concur** in your No Adverse Effect finding by reason of redesign. The cut proposed 82 feet from the site would achieve a no adverse effect in our opinion. Monitoring as a means of discovering unanticipated but possible effects is appropriate. We do not think that a MOA covering those proposals is necessary but we would like to receive a copy of the Special Provisions to the contract. We would also like to suggest that the monitor set up several points across the face of the panels, say on either side of cracks, or something, and in relation to some reference point so that metric observations could be made before, during and after construction as an aid in recognizing unintended impacts should they begin.

Thank you for your assistance in this matter.

Sincerely,

Stan Wilmoth, Ph.D.
State Archaeologist/Deputy SHPO

File NR/24ML398, MDT/Musselshell E&W

20010624 30 MDT

Montana Department of Transportation
2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

David A. Galt, Director
Judy Martz, Governor

June 28, 2001

Mark Baumler
State Historic Preservation Office
Montana Historical Society
1410 East 8th Avenue
P.O. Box 201202
Helena, MT 59620

Subject: **Melstone East & West : 24ML720**
STPP 14-5(12) 196
Control Number 2152

Dear Mark,

Enclosed for your review and comment is a cultural resource testing report for site **24ML720**, a lithic scatter reported by Historical Research Associates along the Melstone East & West project corridor.

Attached is a letter I sent to Montana SHPO on 3/5/01, which explains my reasons for giving 24ML720 another look.

As it turns out the material that was called porcellanite in the original report, and which I called low grade porcellanite in my letter of 3/5/01, is actually an outcrop of Bearpaw Shale. The rock is a creamy oatmeal in color and superficially resembles poor quality light-colored, porcellanite. Anyway, it has never been quarried, although in places it is frost fractured into pieces vaguely resembling chipped stone debris. See page 4, Figure 5.

The site has now been revisited, systematically re-surveyed and collected, mapped and tested with formal subsurface units. While it does indeed contain type-able chipped stone projectile points, it is pretty clear that the site lacks integrity of location. Likewise, it is very unlikely that it will ever produce material suitable for chonometric dating. In addition, if datable materials do show up at this site they will not be *in situ*, as nothing at this site **is** *in situ*.

I used to think that finding a couple of type-able points at a site could produce information that would significantly increase our understanding of local or regional

prehistory. I am not at all sure of this any more. At 24ML720 it certainly appears that we've got an Oxbow assemblage (HRA feels that specimen 93-P-2 [page 17, bottom row] is a McKean point but I feel it is pretty fragmentary to type reliably). However, without C14 dates to tie the assemblage to a specific point in time (not simply 6,750 BP to 3,000 BP, which covers most of the Oxbow dates from the Northern Plains), it is difficult for me to see how this particular assemblage will help us much in a scientific sense. As an example, take the recently excavated Trapper's Point site in Southwestern Wyoming. The Wyoming DOT excavated this Early Archaic antelope kill site, which produced 279 type-able projectile points in an antelope bone-bed and processing area. Corner-notched, side-notched, and stemmed point styles are all represented. Without knowing that these points range in age from 7,800 BP-4,600 BP, one would likely break them down into Bitterroot, Oxbow, McKean, Besant, Pelican Lake, and Late Plains Side-notched (some are arrow-point sized) types. My point is that as we dig more sites and gather more C14 dates and data, my confidence in being able to look at a point out of context and call it by name, explaining that it is X years old, is growing weaker and weaker.

At 24ML720 we have recovered all the data we are likely to get from this surface site already.

If you have questions about the site or project please contact me at 406-444-0455 or splatt@state.mt.us.

Steve Platt, Archaeologist
Environmental Services

CONCUR
MONTANA SHPO
6/29/2001 SIGNED
NOT Elig.

Cc: Gordon Stockstad, Chief, Resources & Permitting
Patrick Rennie, DNRC Archaeologist w/ report
George Reed, Crow Cultural Director w/ report
Darryl James, BRW Inc.

MONTANA DEPARTMENT OF TRANSPORTATION
Environmental Services

2701 Prospect Avenue
PO Box 201001
Helena, MT 59620-1001

Marc Racicot, Governor

January 3, 2000

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)
Lee Metcalf Building
1520 East 6th Avenue
P.O. Box 200901
Helena, MT 59620-0901

Attention: Jeff T. Ryan, Water Quality/Wetland Specialist
Water Protection Bureau

Subject: STPP 14-5(12)196
MELSTONE-E & W
(P.M.S. Control #2152)

The MONTANA DEPARTMENT OF TRANSPORTATION (MDT) is requesting information from the DEQ for the environmental documentation on this proposed project. Attached are copies of its Preliminary Field Review, and Location Map. This proposed project is currently-scheduled to be "Ready" by September, 2001 for "letting" to contract.

Please indicate if the DEQ has any waterbodies (*i.e.*: streams and/or lakes) listed on the 305(b) report published-for the STATE OF MONTANA that may be affected by this proposed project. Also, please indicate whether such streams or lakes are designated as "water quality limited" and are in need of a Total Maximum Daily Load (TMDL) development. Please also identify what parameters are present that may be limiting water quality in the waterbody if it will be affected by this proposed project.

Please also add any pertinent information available at this time from DEQ that would be useful for MDT in the development of this proposed project's design and preparation of its environmental documentation. This information may include stream classifications in this proposed project's vicinity, wetlands, unique "problems" and/or items of concern, management goals, etc. Statements on these matters will result, if necessary, in further inter-agency coordination to avoid or minimize potential project impacts. If no written response is received within forty-five (45) calendar days, it will then be assumed that the DEQ has no concerns about this proposed project.

If there are any questions. please contact this office at extension 7227.

Barry Brosten

Barry C. Brosten
(acting) Engineering Bureau Chief
MDT Environmental Services

An Equal Opportunity Employer

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

MARC RACICOT, GOVERNOR

SOUTHERN LAND OFFIC
AIRPORT INDUSTRIAL PAR

STATE OF MONTANA

(406) 247-4400

BILLINGS, MONTANA 59105-19

RECEIVED
JAN 0 3 2000
B.R.W., Inc.

December 28. 1999

Kristin Kenyon, AICP
BRW Group
Seventeenth Street Plaza
1225 Seventeenth Street
Suite 200
Denver. CO. 80202

Dear Kristin:

I am responding to your correspondence of December 21, 1999 regarding a Montana DOT project in Musselshell County.

Please consider Montana DNRC to be a cooperating agency.

You indicated that existing easement D-2276 covers the site, and no further easements or licenses are needed.

Briefly stated, the answer to all seven questions posed is "no". I see no reason for concern from DNRC on this project.

Thank you.

Sincerely,

Don Kendall
SLO Area Manager

cc. Marylee Norris

BRW
A DAMES & MOORE GROUP COMPANY

Seventeenth Street Plaza
1225 Seventeenth Street
Suite 200
Denver, Colorado 80202
303 293 8080 Tel
303 293 8585 Fax

December 27, 1999

Town Council
TOWN OF MELSTONE
P.O. Box 237
Melstone, MT 59054-0237

Mayor
Charles Church
(406) 358-2301

Subject: STPP 14-5(12) 196 (US Highway 12)
Melstone East & West
Control Numbers 2152

This is to request the TOWN OF MELSTONE to be a Cooperating Agency on the above referenced project in accordance with the U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION's (FHWA's) regulations under (23 CFR 771.111(d)).

The project, led by the Montana Department of Transportation (MDT), is located in central Montana in Musselshell County and will involve the reconstruction and the realignment of US Highway 12 to meet current MDT design standards. Presently, there are several substandard horizontal and vertical curves along this highway. Two projects connect at reference (mile) post 196. One project, Musselshell – East & West, begins at reference post 189.3 and ends at reference post 196 (see Figure 1-A). The other project, Melstone – East & West, which is the subject of this letter, begins at reference post 196 and ends approximately at reference post 207.2 as shown on Figure 1-B. The total length of the projects combined is 28.4 km (17.7 mi) with the westerly terminus west of the town of Musselshell and the easterly terminus east of the town of Melstone at the Musselshell River bridge.

The area of the Melstone project between Reference (mile) posts 203.7 and 205.2 may be of particular interest to the Town of Melstone. This includes the NW ¼ - SW ¼ of Section 29, the NE ¼ and S ½ - SE ¼ and SE ¼ - SW ¼ of Section 30, and NW ¼ of Section 31, all in Township 10 N, Range 31 East.

Through this letter, MDT is also requesting information from the Town of Melstone to be used in the preparation of the environmental documentation on the proposed projects. Please notify us if there are any particular issues that we should be aware of.

- Are there any specific leases or land uses that may be adversely impacted, or that should be considered?

- Does the Town have any ongoing or presently planned projects for the particular area that could affect, or be affected by the proposed action? Is the Town aware of any proposed or current projects by others (public or private agencies) that pose similar effects?

- Have any cultural resource surveys or historical, archaeological or paleontological resource discoveries been made within Town boundaries adjacent to, or on the proposed projects?

- Are there are any lands that may have present or planned usage as defined by *Section 4(f)* of the *1966 Department of Transportation Act* (49 U.S.C. 303)? These include lands that are part of publicly-owned significant, state or local parks, wildlife refuges or recreation areas. It also

includes sites eligible for inclusion, or in the NATIONAL REGISTER OF HISTORIC PLACES (under *Section 106* of the *National Historic Preservation Act*, (16 U.S.C. 470).

- Have any lands in the project vicinity been purchased or are administered for recreational purposes under *Section 6(f)* of the *National Land & Water Conservation Fund Act* (16 U.S.C. 460)?

A written response to this Cooperating Agency request is needed for the environmental documentation on these projects. A response on these matters may result, if necessary, in further inter-agency coordination to avoid or minimize potential project impacts. As a Cooperating Agency, DNRC will receive periodic updates on the progress of the documentation, as well as requests for your participation in additional coordination meetings. MDT will also provide a copy of the rough draft environmental document for these projects for your review.

Enclosed for your review is a copy of the Preliminary Field Review Report for Melstone – East and West. Please contact MDT's Environmental Services at (406) 444-7227 or myself at 1-800-449-2302 ext. 572 if you have any questions about this request. If no reply is received within forty-five (45) calendar days, it will be assumed the Town has no concerns about this proposed project. Thank you for your assistance.

Sincerely,

Kristin Kenyon

Kristin Kenyon, AICP
BRW, Inc. Project Manager

Enclosures

cc: Bruce Barrett, District Administrator – MDT District (No. 5)
Carl S. Peil, P.E.,MDT Preconstruction Engineer
Thomas E. Martin, P.E., MDT Right-of-Way Bureau Chief
Timothy W. Reardon, Chief Counsel. MDT Legal Services
Joel M. Marshik, P.E., Manager – MDT Environmental Services
Barry Brosten, Acting Engineering Bureau Chief – MDT Environmental Services
Dale Paulson, Program Development Engineer – FHWA
file

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)	Date of Land Evaluation Request 10/18/01
Name of Project: Musselshell - East & West and Melstone - East & West	Federal Agency Involved USDoT - Federal Highway Administration
Proposed Land Use Roadway Right-of-Way	Musselshell County, Montana
PART II (To be completed by SCS)	Date Request Received by SCS

Does the site contain prime, unique, statewide or local important farmland? Yes 9 No 9 (If no, the FPPA does not apply - do not complete additional parts of this farm.)	Acres Irrigated	Average Farm Size: 6,000 ac
Major Crop(s) / Farmable Land in Govt. Jurisdiction Acres: %		Amount of Farmland as Defined in FPPA Acres: %
Name of Land Evaluation System Used / Name of Local Site Assessment System		Date Land Evaluation Returned by SCS

PART III (To be completed by Federal Agency)	Alternate Site Rating			
	No Build	Build "A"	Build "B"	Build "D"
A. Total Acres to be converted directly	0.0	16.3		
B. Total Acres to be converted indirectly	0.0	0.0		
C. Total Acres in Site	0.0	41.9		
PART IV (To be completed by SCS) Land Evaluation Information				
A. Total Acres Prime and Unique Farmland				
B. Total Acres Statewide and Local Important Farmland				
C. Percentage of Farmland in County or Local Govt., unit to be converted				
D. Percentage of farmland in Govt. Jurisdiction with same or higher relative value.				
PART V (To be completed by SCS) Land Evaluation Criterion Relative Value of Farmland to be converted (Scale of 0 to 100 Points)				

PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.8(b))	Max. Pts.				
1. Area Nonurban Use	15	14	14		
2. Perimeter in Nonurban Use	10	9	9		
3. Percent of Site Being Farmed	20	8	8		
4. Protection Provided by State and Local Govt.	20	0	0		
5. Distance from Urban Builtup Area	N/A	N/A	N/A		
6. Distance to Urban Support Services	N/A	N/A	N/A		
7. Size of present farm unit compared to average	10	1	1		
8. Creation of nonfarmable farmland	25	0	0		
9. Availability of farm support services	5	1	1		
10. On-farm investments	20	0	1		
11. Effects of conversion on farm support services	25	0	0		
12. Compatibility with existing agricultural use	10	0	0		
TOTAL SITE ASSESSMENT POINTS	160	33	34		
PART VII (To be completed by Federal Agency)					
Relative value of farmland (From Part V)	100	100	100		
Total Site Assessment (From Part VI above or a local site assessment)	160				
TOTAL POINTS (Total of above 2 lines)	260	133	134		

Site Selected:	Date of Selection	Was a Local Site Assessment Used? Yes 9 No 9

Reason for Selection: Total Site Assessment Points are less than 160; therefore, under 7CFR 658.4©, this site will be given a minimal level of consideration, and no additional sites will be evaluated.

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 - Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 - Originator will send copies A, B and C, together with maps indicating locations of site(s), to the Soil Conservation Service (SCS) local field office and retain copy D for their files. (Note: SCS has a field office in most counties in the US. The field office is usually located in the county seat. A list of field office locations are available from the SCS State Conservationist in each state).

Step 3 - SCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step 4 - In cases where farmland covered by the FPPA will be converted by the proposed project, SCS field offices will complete Parts II, IV and V of the form.

Step 5 - SCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for SCS records).

Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 - The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTION FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres to be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in ə 658.5(b) of CFR. In cases of corridor-type projects such as transportation, powerline and flooded control, criteria #5 and #6 will not apply and will be weighted zero, however, criterion #8 will be weighted a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 13 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points", where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site A maximum is 200 points; and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

SS:Q:ENV:43.gg

Appendix B
Programmatic *Section 4(f)* form

MONTANA DIVISION

"NATIONWIDE" *SECTION 4(f)* EVALUATION FOR MINOR IMPACTS ON HISTORIC SITES EXCLUDING HISTORIC BRIDGE REPLACEMENTS

Project # **STPP 14-5(18)189**, (P.M.S. 1302) Description: Goffena Ditch
Project Name: Musselshell – East & West Location: Musselshell County

NOTE: Any response in a box requires additional information. Consult the "Nationwide" Section 4(f) Evaluation criteria.

		YES	NO
1.	Is the *4(f)* site adjacent to the existing highway?	X	[ ]
2.	Does the proposed project require the removal or alteration of historic structures, and/or objects? Proposed work includes replacing existing pipes/ culverts with larger ones for crossing the Goffena Ditch at approximately RP/MP 189+70, 190+30, and 192+90.	X	[ ]
3.	Does the proposed project disturb or remove archaeological resources which are important to preserve in-place rather than to recover?	[ ]	X
4.	Is the impact on the 4(f) site considered minor (i.e.: no effect; or no adverse effect)?	X	[ ]
5.	Has the STATE HISTORIC PRESERVATION OFFICE (SHPO) agreed in writing with the assessment of impacts, and the proposed mitigation? See Programmatic Agreement.	X	[ ]
6.	Is the proposed action under an Environmental Impact Statement (E.I.S.)?	[ ]	X
7.	Is the proposed project on a new location?	[ ]	X
8.	The Scope-of-Work for the proposed project is one of the following:	X	[ ]

a) Improved traffic operation;
b) Safety improvements;
c) 3R;
d) Bridge replacement on essentially the same alignment; or
e) Addition of lanes.

ALTERNATIVES CONSIDERED

1.	The Ado-nothing≅ **ALTERNATIVE** has been evaluated, and is not considered to be feasible and prudent.	X	[ ]
2.	An **ALTERNATIVE** has been evaluated which improves the highway without any *4(f)* impacts, and is also not considered to be feasible and prudent. Due to the location of the ditch perpendicular to the alignment, avoidance of the ditch impacts would require substantial realignment of the roadway.	X	[ ]

3. An **ALTERNATIVE** on a new location avoiding the *4(f)* site has been evaluated, and is not considered to be feasible and prudent. [X] [ ]

   The Gofenna Ditch parallels the existing alignment, and traverses the alignment at several locations in this portion of the corridor. Moving the alignment further north or south would result in similar impacts at different locations. However, shifting the alignment to the south and realigning portions of the ditch allow for avoidance of impacts to additional cultural resources (Four Horses, and Twenty One Guns rock art sites) on the northerly side of the alignment.

MINIMIZATION OF HARM

	YES	NO
1. The proposed project includes all possible planning to minimize harm.	[X]	[ ]

2. Measures to minimize harm include:

   Proposed work will be confined to an area immediately adjacent to the existing alignment. No irrigation control structures, such as valves, pumps, diversion boxes or headgates and/or other channel changes will be involved. The existing use of the Goffena Ditch would be perpetuated.

COORDINATION

1. The proposed project has been **COORDINATED** with the following:

a)	SHPO (on: 2-4-91/signature on Programmatic Agreement, copy attached)	[X]	[ ]
b)	ADVISORY COUNCIL ON HISTORIC PRESERVATION (ACHP, on: 3-18-91/ signature on Programmatic Agreement, copy attached)	[X]	[ ]
c)	Ditch owner	[X]	[ ]
d)	Local/State/Federal agencies	[X]	[ ]

   List: FEDERAL HIGHWAY ADMINISTRATION (FHWA, on 2-6-91/ signature on Programmatic Agreement, copy attached)

2. None of the preceding had any comment(s) regarding this proposed project, and/or the mitigation.

SUMMARY

All required **ALTERNATIVES** have been evaluated and the proposed project meets all the criteria included in the ANationwide Programmatic≅ *Section 4(f)* evaluation approved on December 23, 1986. This Programmatic Evaluation includes all possible planning to minimize harm which will be incorporated in this proposed project.

APPROVAL

This document is submitted pursuant-to **49 U.S.C. 303**, and in-accordance-with the provisions of **16 U.S.C. 470f**.

Jean A. Riley, P.E.
Engineering Bureau Chief - MDT Environmental Services

Date: 4/12/02

Approved: _____
Federal Highway Administration

Date: 4/15/02

ALTERNATIVE ACCESSIBLE FORMATS OF THIS DOCUMENT WILL BE PROVIDED ON REQUEST.

JMM:TLY:asj:

Attachments

cc: B. H. Barrett
C. S. Peil
J. H. Horton, Jr.
M. A. Wissinger
D. W. Jensen
J. M. Marshik

PROGRAMMATIC AGREEMENT
AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE MONTANA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE TREATMENT OF HISTORIC IRRIGATION DITCHES
AFFECTED BY HIGHWAY CONSTRUCTION IN MONTANA

WHEREAS, the Federal Highway Administration, Montana Division (FHWA), proposes to make Federal funding available to the Montana Department of Highways (MDOH) for that agency's ongoing program to construct or rehabilitate highways, and

WHEREAS, the FHWA has determined that this federally-assisted program may have an effect upon a certain class of properties included in or eligible for inclusion in the National Register of Historic Places and has consulted with the Advisory Council on Historic Preservation (Council) and the Montana State Historic Preservation Officer (SHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the Montana Department of Highways (MDOH) participated in the consultation and has been invited to concur in this Programmatic Agreement;

NOW THEREFORE, the FHWA, the Council, and the Montana SHPO agree that the program addressed in this Programmatic Agreement shall be administered in accordance with the following stipulations to satisfy the FHWA's Section 106 responsibility for all individual undertakings of the program.

Stipulations

The FHWA will ensure that the following measures are carried out:

General Notes:

A) The term "Irrigation Ditches" applies to irrigation ditches and ancillary structures such as, but not limited to, concrete ditch linings, intake headgates, overflow structures, flumes and siphons.

B) The procedures in this Programmatic Agreement will be following without regard to the ownership or length of the irrigation ditches addressed in this Agreement.

1) MDOH will assist the FHWA in meeting the compliance requirements of 36 CFR Section 800.4 through 800.6, as applicable, for those highway construction projects affecting irrigation ditch-related structures that are 50 years or older. For the purpose of this Programmatic Agreement, structures associated with existing roads and built as part of the roadway, such as metal or concrete culverts, will be considered to be features of the roadway and not of an intersecting irrigation system.

2) MDOH will assist the FHWA in meeting the compliance requirements of 36 CFR Section 800.4 through 800.6, as applicable, when the affected irrigation ditch has been abandoned, i.e., is no longer operational and operated. In such circumstances, the requirements of Section 106, as implemented by 36 CFR Part 800, will be met whether or not ditch-related structures will be impacted.

3) MDOH will assist the FHWA in meeting the compliance requirements of Section 106 of the Act, as implemented by 36 CFR Part 800, for those projects affecting irrigation ditches and associated structures, if any, previously listed on or determined eligible for inclusion in the National Register of Historic Places.

4) When operational irrigation ditches without structures in the construction-impact area will be re-channeled during highway construction, MDOH will comply with the following procedures:

   a) Simplified inventory forms employing a format approved by the SHPO will be used to describe the feature. The forms will provide an assigned Smithsonian site number, the ditch's name, legal description, a history and map of the ditch taken from the appropriate Montana Water Resources Survey publication or other readily available published source and MDOH's assigned project name and number.

   b) Such ditches will not be evaluated against the criteria of the National Register of Historic Places.

   c) It is understood that determinations of effect, alternative project designs to avoid impact or mitigation of effect (other than continued ditch operation) will not be done by MDOH or FHWA.

   d) Irrigation ditches not identified by name in the appropriate Montana Water Resources Survey publication will not be considered under any circumstances.

5) The Council and the SHPO may monitor activities carried out pursuant to this Programmatic Agreement, and the Council will review such activities if so requested by a signatory to this Agreement or by a member of the public. FHWA will cooperate with the Council and the SHPO in carrying out their monitoring and review responsibilities.

6) Any party to this Programmatic Agreement may request that it be amended, whereupon the parties will consult in accordance with 36 CFR Part 800.13 to consider such amendment.

7) Any party to this Programmatic Agreement may terminate it by providing, in writing, forty-five (45) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, FHWA will comply with 36 CFR Part 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.

8) If a dispute arises regarding implementation of this Programmatic Agreement, FHWA will consult with the objecting party to resolve the dispute. If any consulting party determines that the dispute cannot be resolved, FHWA will request the further comments of the Council pursuant to 36 CFR Part 800.6(b). Any council comment provided in response to such a request will be taken into account by the FHWA in accordance with 36 CFR §800.6(c)(2) with reference only to the subject of the dispute; the FHWA's and MDOH's responsibilities to carry out all actions under this Programmatic Agreement that are not the subjects of the dispute will remain unchanged.

9) In the event that the FHWA does not carry out the terms of this Programmatic Agreement, the FHWA will comply with 36 CFR Sections 800.4 through 800.6 with regard to individual undertakings covered by this Programmatic Agreement.

Execution and implementation of this Programmatic Agreement evidences that the FHWA has satisfied its Section 106 responsibilities for all individual undertakings of the program.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 3-15-91

MONTANA DIVISION, FEDERAL HIGHWAY ADMINISTRATION

By: David C Miller Date: 2-6-91

MONTANA STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 2-4-91

CONCUR

MONTANA DEPARTMENT OF HIGHWAYS

By: _____ Date: Feb 1, 1991

JA:Q:ENV:77.cm

MONTANA DIVISION

"NATIONWIDE" *SECTION 4(f)* EVALUATION FOR MINOR IMPACTS ON HISTORIC SITES EXCLUDING HISTORIC BRIDGE REPLACEMENTS

Project #14-5(18) 189, (P.M.S. **C# 1302**) Date: 6/1/2001

Project Name: Musselshell–East&West Location: Musselshell County, US Highway 12

NOTE: Any response in a box requires additional information. Consult the "Nationwide" Section 4(f) Evaluation criteria.

	YES	NO
1. Is the *4(f)* site adjacent to the existing highway?	X	[ ]
The Twenty One Guns Site (24ML398) is located west of Musselshell, just east of milepost 189 on the north side of the highway.		
2. Does the proposed project require the removal or alteration of historic structures, and/or objects?	[ ]	X
3. Does the proposed project disturb or remove archaeological resources which are important to preserve in-place rather than to recover?	[ ]	X
4. Is the impact on the *4(f)* site considered minor (i.e.: no effect; or no adverse effect)?	X	[ ]
5. Has the STATE HISTORIC PRESERVATION OFFICE (SHPO) agreed in writing with the assessment of impacts, and the proposed mitigation?	X	[ ]
6. Is the proposed action under an Environmental Impact Statement (E.I.S.)?	[ ]	X
7. Is the proposed project on a new location?	[ ]	X
8. The Scope-of-Work for the proposed project is one of the following:	X	[ ]

a) Improved traffic operation;
b) Safety improvements;
c) 3R;
d) Bridge replacement on essentially the same alignment; or
e) Addition of lanes.

NOTE: *Any response in a box requires additional information. Consult the "Nationwide" Section 4(f) Evaluation criteria.*

ALTERNATIVES CONSIDERED	YES	NO
1. The "do-nothing" **ALTERNATIVE** has been evaluated, and is not considered to be feasible and prudent.	X	[ ]
2. An **ALTERNATIVE** has been evaluated on the existing alignment which improves the highway without any *4(f)* impacts, and is also not considered to be feasible and prudent.	X	[ ]
3. An **ALTERNATIVE** on a new location avoiding the *4(f)* site has been evaluated, and is not considered to be feasible and prudent.	X	[ ]
Descriptions of **ALTERNATIVES** attached.	X	[ ]

MINIMIZATION OF HARM

1. The proposed project includes all possible planning to minimize harm.	X	[ ]

2. Measures to minimize harm include the following:

The cut needed for construction of the project was originally designed to extend within 5 feet of the rock art site. The construction limits were modified to minimize the size of the cut and the project's effect to the historic site. A special provision will also be added to require monitoring of the site as excavation proceeds in the vicinity of the site. Based on the design modifications, impacts to the site would be minimized due to the distance remaining between the rock art and the proposed roadway alignment, and the site will remain outside of the proposed right-of-way boundaries.

COORDINATION

1. The proposed project has been **COORDINATED** with the following:

a) SHPO (date: 1/19/01)	X	[ ]
b) ADVISORY COUNCIL ON HISTORIC PRESERVATION (ACHP)	_	[X]
c) Property owner	_	X
Local/State/Federal agencies	X	[ ]

List:

(County, School District, etc.) (date:)
(MDFW&P, MDSL, etc.) (date:)
(USDoI, USDA, etc.) (date:)

2. One of the preceding had the following comment(s) regarding this proposed project, and/or the mitigation:

MDT reviewed the plans in the vicinity of the Twenty One Guns site and completed a determination of effect for the Musselshell project. MDT determined that the project would have No Adverse Effect to the Twenty One Guns site (24ML398).

SUMMARY

All required **ALTERNATIVES** have been evaluated and the proposed project meets all the criteria included in the "Nationwide Programmatic" *Section 4(f)* evaluation approved on December 23, 1986. This Programmatic Evaluation includes all possible planning to minimize harm which will be incorporated in this proposed project.

APPROVAL

This document is submitted pursuant to **49 U.S.C. 303** and in accordance with the provisions of **16 U.S.C. 470f**.

Jean A. Riley, P.E.
Engineering Bureau Chief
Environmental Services

Date: 4/12/02

Approved: Gene R. Kaufman
Federal Highway Administration

Date: 4/15/02

Attachment

cc: Bruce H. Barrett – Billings District Administrator
Carl S. Piel, P.E. - Preconstruction Engineer
Joseph P. Kolman, P.E. - Bridge Engineer
John H. Horton Jr., P.E., Right-of-Way Bureau Chief
David W. Jensen, Supervisor - Fiscal Programming Section
Mark A. Wissinger, P.E., Supervisor - Contract Plans Section
Stan Sternberg, Acting Manager - Environmental Services
(Cooperating Agency/ies, w/attachment)

Description of Alternative (Preferred Alternative – Alternative A)

From this proposed project's westerly beginning at RP 189.3± and running east-northeasterly to RP 191.7±, this Alternative A would follow US 12's present horizontal alignment. Variations (dips and bumps) in its vertical alignment would be evened out for a more even profile. Between RPs 191.7± and 192.8±, this alternative's proposed centerline would be about 16 m (52.5± ft) south-southeasterly of and runs parallel to US 12's present route. From RPs 192.8± to 193.4±, the proposed alignment would curve northerly (running eastbound) across US 12 and would briefly parallel the latter some 12 m (39± ft) westerly. It would then curve northeasterly crossing US 12 again, with the latter continuing out to 125± m (410± ft) north-northeasterly. Alternative A would rejoin US 12's present centerline at RP 194.25± and follow it to this proposed project's east-northeasterly end at RP 196.0±.

Impacts

Vibration impacts associated with construction of this proposed project were anticipated to the Twenty-one Guns site with the originally-designed alignment. Subsequently, MDT roadway designers modified the design in this area reducing the impacts associated with construction vibration. The construction limits were modified to minimize the size of the cut and the overall effect of the proposed Musselshell project to the historic site. Specifically the distance for the road cut for the proposed alignment has been increased from the original 1.5 m (5 feet) to be 25 m (82 feet) from the site. The proposed centerline would be 47 m (154 feet) from the site and the proposed pavement edge would be 45 m (148 feet) from the site. The cutline would be 24 m (79 ft) from the site and the easement would be 4 m (13 ft) from the site.

Based on the design modifications, impacts to the site would be minimized due to a fairly substantial distance remaining between the rock art and the roadway. The historic site would remain outside of the proposed right-of-way boundaries.

Avoidance Alternative

An Avoidance Alternative for both the Cooley-Goffena Ditch (24ML373) and the Twenty One Guns site (24ML398) between RP 189.6± and 190.4± near the proposed Musselshell-East & West project's beginning would need to "shift" that pending action's alignment southeast. However, such a move would result in both additional wetlands impacts and embankment encroachment along the Musselshell River's northwest bank. The alternative would avoid the Twenty One Guns site, but would require a similar number of crossings and impacts to the Cooley-Goffena Ditch.

Appendix C
List of Preparers

List of Preparers

Montana Department of Transportation Staff

Bruce Barrett	Billings District Administrator	Alternatives, Public Involvement, Design Issues, Water Quality, Noise, Air Quality, Hazardous Waste, SHPO Coordination, Bridge Design, Hydraulics.
Jean A. Riley, P.E.	Engineering Bureau Chief Environmental Services	
Art Jacobsen	Environmental Services	
Dave Hill	District Biologist	
Jon Axline	Historian	
Steve Platt	Anthropologist	
Stan Sternberg	Hazardous Waste	

URS/BRW, Inc. Staff

Darryl L. James, AICP	Project Director – QA/QC	Project Coordination and Documentation, Socio-Economic Impacts, Environmental Justice, Farmlands, Visual Assessment, Section 4(f) Coordination.
Jennifer Salisbury	Transportation/Environmental Planner	
Kathleen L. Collins	Transportation Planner	
Andrea Hallman	Environmental Planner	Wetlands, Biological Resources, Threatened & Endangered Species, Vegetation.
Beth Kunkel	Natural Resource Manager	
Jeffrey W. Olson	Biologist	
Kirk Eakin	Biologist	404/124 Joint Permit Application